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"Foreign Exchange Risk Management Practices by Jordanian Non-Financial Firms"

"ممارسات إدارة مخاطر أسعار الصرف الأجنبية من قبل الشركات الأردنيه غير المالية"

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Foreign Exchange Risk Management Practices by Jordanian Non-Financial Firms

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To My Parents ....

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Abstract

"Foreign Exchange Risk Management Practices by Jordanian Non-Financial Firms"

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Foreign exchange risk becomes more and more important in light of world markets globalization and internationalization, and is one of the most difficult and persistent problems with which the financial executives must cope with. This study concentrates on foreign exchange risk management practices of Jordanian based firms, and examines the relationship between various factors that are presumed to affect the adopting of foreign exchange risk management techniques namely: firm's size, sector, international business involvement and legal structure. The study focuses on transaction and economic exposures as the dimensions of foreign exchange risk management techniques.

Results are taken from an empirical field study of 73 non-financial firms listed in *Jordan's Income & Sales Tax Department*, as major tax payers. The study uses the *Kruskal-Wallis* one-way analysis of variances (ANOVA) to analyze the data.

The results indicate that use of foreign exchange risk management techniques such as the financial derivatives, is not a common practice by Jordanian firms. The most common methods used by the firms are internal (natural) resources to encounter the foreign exchange risk such as matching, netting, using local currency and the price policy. In addition, this study concludes that there are no relationships between firm's size and legal structure on one hand and the management practices toward transaction exposure on the other. While a relationship between firm's sector and international involvement with the management practices was found in the transaction exposure dimension. Concerning the economic exposure dimension a relationship between all the characteristics and the managerial techniques is found.

The study recommends proper training programs for financial managers in order to enhance their knowledge about the importance of foreign currency risk and the different techniques used to manage that risk.

Key Words: foreign exchange risk, exchange rate risk, currency risk, transaction exposure, economic exposure, financial derivatives.

CHAPTER ONE

INTRODUCTION

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INTRODUCTION

1.1 Preface

In a globalization and internationalization era, the economic environment in which most firms operate is highly volatile and uncertain. The volatility can be reflected in increased fluctuations in foreign exchange, interest, and inflation rates, also in an increased competition, demand levels and others. In addition, the extensive use of financial innovations and the advances in the financial instruments to manage this risk make this issue one of the firm's priorities.

This study will concentrate on Foreign Currency Risk as a crucial factor that affects most firms, especially that trade frequently in the international markets. That is so because if a firm buys a foreign asset, it will be exposed to two types of risk: The first is related to the value of the asset, while the other is related to the fluctuations in exchange rates. (in other words) an overseas contract, which is profitable at the time of the deal, may become unprofitable if the exchange rates changes. This is an example of the direct exposure to movements in exchange rates; however the exposure can have an indirect effect through pricing strategies

changes, labor costs and others. In addition, the growth in the size of international trade makes the foreign currency risk an important issue for a whole range of companies.

Foreign exchange risk as a part of financial risk is classified into three forms:

1. Transaction risk, resulting from future transactions (sales and purchases) that are certain to take place but before the company will be able to adjust prices in line with the exchange rate movements.
2. Economic risk, which is any exposure of firms cash flows (direct or indirect) to exchange rate movements.
3. Translation risk, relates to the exposure of a firm's consolidated financial statements to exchange rate movements.

The expressions Transaction, Translation and Economic risks were first used by Ankrom (1974), other expressions and definitions will be discussed thoroughly later in this study.

Managing foreign currency risk involves adopting strategies and using instruments that protect the firm's value and cash flows against the movements of the currencies exchange rates. This process is done after measuring the exposure to the risk with currencies that are involved in its transactions.

Given the significance of this subject and its impact on the value of the firm, questions arise about the implementation of techniques that manages the exchange rate risk in Jordan.

Jordan is a developing country that became the 136th member of the World Trade Organization (WTO) on April 11, 2000[1], and to achieve that it was embarked on major reforms of its economy and legislations to promote greater foreign trade and investment.

This study will explore the areas of foreign currency risk management with a special emphasis on specific forms of that exposure. Namely the transaction and economic exposures. Translation is not studied thoroughly because of the small number of multinational firms based in Jordan that are exposed to such risk. Also the analysis will involve only selected non-financial companies as the sample of the study.

Financial companies will be neglected because of the ambiguity concerning their purpose of their use of the hedging instruments.

Currently there is a scarcity of research papers about foreign exchange risk management in emerging markets. Theoretical studies are usually supported by findings from developed countries (Jonuska and Samenaite 2003).

Therefore this study will be distinctive, because it will contribute in the increase of the academic studies about emerging markets. Also it

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[1] www.wto.org/member information/Jordan

concentrates on Jordan, one of the Middle East countries, which makes it one of the earliest foreign currency risk management studies in this area.

1.2 Objectives of the Study

The main objective of this study has twofolds. First, to describe the theoretical results of exchange rate risk management in order to increase the understanding of the exchange rate risk management practices, and also to explain the importance of the issue to firms by giving an overview of how this process is undertaken in theory. Second, is devoted for the management of exchange rate risk in practice. This part will represent the empirical field study of a number of Jordanian firms, which investigates the relationship between various factors that are presumed to affect the adopting of exchange rate risk management techniques. The factors that will be used in this study are the firm-specific characteristics which are: firm's size, sector, international business involvement and legal structure. Specifically, this research aims at achieving the following objectives:

1) To explain the theoretical ground of the foreign currency risk management through four sections:
    - Exchange rate risk identification.
    - Rationale for hedging.
    - Exchange rate risk management process.
    - Exchange rate risk management techniques and tools.

2) To investigate the relationship between international business involvement and management practices with foreign currency risk in the Jordanian environment
3) To investigate the relationship between legal structure and management practices with foreign currency risk in the Jordanian environment
4) To investigate the relationship between firm's size and management practices with foreign currency risk in the Jordanian environment.
5) To investigate the relationship between firm's sector and management practices with foreign currency risk in the Jordanian environment.

The firm-specific characteristics impacts on the managerial practices of the Jordanian firms will be investigated by examining the opinions of financial controllers or treasury managers or persons involved in the foreign exchange management decisions.

1.3 Importance of the Study

Foreign currency risk becomes more and more important in light of world markets globalization and internationalization. This direct exposure is a result of foreign trade and other financial activities.

To illustrate the enormous impact of that exposure, assume that a multinational company buys its raw material in its domestic market and sells its final product in both foreign and domestic markets, given that the

company cannot change its product price due to competition from other companies. If the foreign currency depreciates relative to the domestic one, this situation will affect the company in such away that it will generate less income, when converting the foreign revenues from the sales of the product, to the domestic currency, than before the change in the foreign currency market. That is because the domestic currency appreciates, consequently the cost of producing the product such as raw material will become more expensive.

Also the change in the foreign currency market will affect the company's domestic market by the advantage that the foreign competitors will get by being able to offer lower prices for the same product in that domestic market. Therefore, the company will face double losses. It will lose part of the domestic market and part of the foreign market.

Foreign currency risk can also expose small firms having only domestic trade activities. This exposure can be resulted from outsourcing trends and foreign competition that made those firms increasingly dependent on the world market main currencies fluctuations.

1.4 Motivation for the Study

Foreign currency risk is one of the most difficult and persistent problems with which the financial executives of multinational

corporations must cope with [Jilling, 1978]. One of the best examples to demonstrate the effects of the sudden and large exchange rates movements is the Asian financial crises. Which started in mid-1997 and affected currencies, stock markets, and other asset prices of several South East Asian economies. Triggered by events in Latin America, Western investors lost confidence in securities in East Asia and began to pull money out, creating a snowball effect.

Other currency shocks existed in different areas around the globe and affected the economy severely such as the Brazilian Real Crisis (December 1998 - November 1999), Russian Ruble Crisis (June 1998 - May 1999) and the Mexican Peso Crisis (July 1994-June 1996).

Jordan, the country of the study, is a developing country that is and has always been dependent on the input of external capital including foreign assistance and remittances from Jordanians working abroad.

In 1988/89, the Jordanian economy was hit by a devastating exchange rate crisis that nearly halved the living standard of the average Jordanian and left the government heavily indebted. The crisis was the outcome of a protracted history of high fiscal deficits leading to an increasing debt burden, which was exacerbated by persistent

overvaluation of the exchange rate and the failure to take corrective measures (Sedik and Petri, 2006).

Gulf War crisis began in August 1990 resulted in that more than 320,000 expatriates returned to Jordan from the Gulf nations, causing the cease of much-needed remittances that had formed a major source of foreign exchange. Since 1992 Jordan's economy started to recover after adopting political and economic policies and privatization programs that attracts foreign investments to support the economy by the inflow of hard currency.

Beside the flow of hard currency to Jordan from the foreign investments and tourism which are considered to be vulnerable sectors, due to the geographic location of Jordan in the middle east effected by the war in Iraq in the east and Palestinian-Israeli conflict in the west and also the terrorism threat to the whole region. The industrial sector in Jordan is considered to be one of the major supporters of its economy. Major industries in Jordan are phosphate fertilizers, minerals, petroleum products, food processing, metal products, cement and building materials, cigarettes, animal feed and clothing. Additional industries include

furniture, pharmaceuticals, cosmetics, paints, plastics, paper and cardboard. .[2]

Realizing the significance of the topic a reasonable motivation to investigate and measure the scope using and implementing foreign currency risk management techniques in Jordan.

This type of management is important for protecting Jordanian firms that trade internationally or engage in international transactions. Hence, protect the Jordanian economy as a whole, which has a considerable dependency on such firms, as a part of the international environment.

1.5 Problem Definition

As mentioned earlier there is a scarcity in studies and papers concerning foreign currency risk exposure and management in developing country's. Therefore to achieve a good start in this area is to study and identify factors that are presumed to affect the management of foreign currency risk. This study will investigate a problem, which can be defined through the following questions:

1. ***Do Jordanian corporations adopt or implement foreign exchange risk management techniques?***

[2] Ministry of Industry and Trade (MI&T) 2004, MB, Vol.2-No. (7).Amman.

2. ***What kind of foreign exchange risk management is used mostly by Jordanian corporations?***
3. ***Does the firm-specific characteristic affect the level of adopting foreign exchange risk management techniques in the Jordanian environment?***

1.6 Hypothesis Development

A hypothesis is a testable statement describes logically relationships between two or more variables [Sekaran, 2003]. Hypotheses are considered as propositions or opinions need to be studied, researched and analyzed, in order to be supported and approved or rejected.

In order to conduct this study, the following hypotheses were formulated:

H_{01}: There is a significant statistical relationship between firm's international business involvement level and management practices with transaction exposure in the Jordanian environment.

H_{02}: There is a significant statistical relationship between firm's legal structure and management practices with transaction exposure risk in the Jordanian environment.

H_{03}: There is a significant statistical relationship between firm's size and management practices with transaction exposure in the Jordanian environment.

H04: There is significant statistical relationship between firm's sector and management practices with transaction exposure in the Jordanian environment.

H05: There is a significant statistical relationship between firm's international business involvement level and management practices with economic exposure in the Jordanian environment.

H6: There is a significant statistical relationship between firm's legal structure and management practices with economic exposure risk in the Jordanian environment.

H07: There is a significant statistical relationship between firm's size and management practices with economic exposure in the Jordanian environment.

H08: There is a significant statistical relationship between firm's sector and management practices with economic exposure in the Jordanian environment.

1.7 Scope of the Study

The thesis will study the relationship between foreign currency risk management techniques (dependent variables) on one hand, and the company specific characteristics (independent variables) on the other hand. Both of those parts are limited to a certain level. The first part (dependent variables) will be concentrated only on the transaction and

economic risks excluding the translation risk management techniques because of the small number of multinational firms based in Jordan that are exposed to such risk.

The second part (independent variables) will be limited to the companies specific characteristics. Due to the enormous factors that affect the dependent variables it was decided to limit the scope of this study to that level. Other factors could be competition, regulatory environment, level of education of the decision makers, historical background and other.

1.8 Thesis Outline

This study will be organized in five major parts. After this part, the second part will cover some of the literature pointed to the subject studied in different levels and dimensions. Thirdly a theoretical framework of foreign exchange risk will be provided, starting with a detailed overview of the foreign currency risk identification, measurement and management. In which the identification will include the types of exposures "transaction, economic and translation". The management of foreign exchange risk will be studied through analyzing the different techniques and instruments used for that purpose.

The fourth part will represent the empirical field study of the thesis. Firstly a short overview will be given about the Jordanian economic shape and environment in a form related to the study. Then after presenting the research methodology that will be used to collect the necessary information and to analyze the findings; an investigation will be conducted to the relationship between various factors that are presumed to affect the adopting of foreign currency risk management techniques on a number of Jordanian firms.

The last part continues the analysis of the empirical findings from the previous section, and then a discussion of the applicability of findings for firms and further researches will be stated. In the end the final conclusions will be drawn.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

2.2 Previous Studies

2.3 Comments on Previous Studies

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter is devoted to literature review focusing on foreign currency risk management from different perspectives and different objectives. Studies are displayed and ordered chronologically. A brief comment is provided on these previous studies. Finally, what distinguishes this study from the previous studies in terms of scope and methodology is introduced at the end of the chapter.

2.2 Previous Studies

2.2.1. Belk & Glaum (1990):

Belk & Glaum report the result of an empirical study into how UK multinational corporations try to manage their foreign exchange exposures.

The study is based upon research conducted in 17 major UK industrial companies during 1988. These companies were selected because of their significant degree of international involvement. Personal interviews were conducted with senior financial managers (normally treasurers).

The scope of the research was concerned with:

-Accounting exposure management;

-Transaction exposure management;

-Economic exposure management;

-The organization of the companies' foreign exchange risk management; and

-Objectives of such management.

The research found that the majority of the companies were managing their accounting exposure despite of the financial literature that demonstrate that accounting exposure is not useful for foreign exchange risk management, In addition, the majority considered transaction exposure was the centerpiece of their foreign exchange risk management

Heterogeneous results were produced in the economic exposure management due to the complex nature of that topic and the diversity of the companies, also, a large majority of the companies studied had centralized their foreign exchange risk management and the majority of the interviewees described their companies as "totally risk averse", although they aim profit from foreign exchange management and did not hedge all of their exposures, a small minority characterized their companies attitudes as "risk takers".

2.2.2. Batten, Mellor & Wan (1993) :

The study concentrates on foreign exchange risk management practice and product usage of large Australian-based firms, results are discussed from an empirical field study of 72 firms operating in Australia, using data from mail questionnaire sent to 500 firms selected randomly from 3508 public and private firms with sales over A$10 million per annum. The survey analysis was undertaken in two stages. Firstly, descriptive analysis of a number of company characteristics and management practice variables. Then based on a statistical analysis of five firm-specific variables with six management-practice variables.

The major results of the study were:

-The extent to which industry actively manages rather than hedges foreign exchange risk, which suggested that (70%) trade their foreign exchange exposure.

-How firms determine foreign exchange risk, consistent with Belk & Glaum (1990), most of the sample firms identified transaction exposure as being the most relevant. Also few respondents measured economic exposure. Also very few (8.3%) respondents manage both transactions and translation risk.

-The study also provided insight into which characteristics of a firm in general had the major impact on the risk management practices of the firm, which was the firm size measured by the foreign exchange turn over. Also the form of ownership (foreign or domestic) had an important impact on the degree of centralization of the treasury management function as does the legal structure of the firm (public or private).

2.2.3. Brucaite & Yan (2000):

An explanatory study was conducted to investigate how theoretical transaction exposure management is executed in practice. An analysis of the transaction exposure management of two multinational companies from different industrial clusters as a descriptive example was made.

Data was collected using interviews with persons responsible for the management of foreign exchange risk in these two firms, the researchers put firms real business transaction into the theoretical transaction life span and tried to find out if, in reality, the companies use the transaction exposure management as the theory suggests. Finally, financial risk management strategies of both companies were compared.

The study concluded that there is no general transaction exposure management rule that could be applicable to all the companies. Every company has its own specific characteristic, which depends on a large

number of different macroeconomic factors. The comparison of the companies' transaction management strategies provided the companies with the exceptional opportunity to get a clear and detailed picture of the other company's transaction management strategy. Such information is usually not publicly disclosed.

2.2.4. Bradly & Moles (2001):

The main objective of the study was to examine the effect of direct and indirect economic currency exposure on a group of publicly listed non-financial UK firms.

Information of the study was obtained from companies by two postal questionnaires at two points in time, during a period of Sterling pound depreciation and one during sterling appreciation and the results were compared. Unlike previous surveys of corporate currency exposure, the questionnaires were distributed to all companies in the survey population, regardless of the extent of their international involvement, and this had enabled the indirect competitive effects of economic exposure of such firms to be investigated.

The results of the study showed that when sterling depreciated, firms experienced increased profit margins and/or sales volumes and the increases in the cost of foreign-sourced inputs. The opposite conditions

were reported for sterling appreciation. The results also showed considerable stability in the estimates of the economic exposure between the two periods. In managing currency effects, about (75%) of exporting firms adjusted either margins or volumes, or both, in response to changes in the exchange rate. As with other studies, the study found a significant industry effect.

2.2.5. Allayannis, Brown & Klapper (2001):

The East Asian crises motivated the researchers explore exchange risk hedging practices of firms that hedged exposure to foreign debt in eight East Asian countries between 1996 and 1998.

They identify and characterize East Asian companies that used foreign currency derivatives, documenting differences in size, financial characteristic and exposure to domestic and foreign debt. Also they investigate the factors important to the use of currency derivatives.

The findings limited support for existing theories of optimal hedging, instead, the researchers find that firms use foreign earnings as a substitute for hedging with derivatives, and they find evidence that firms engage in "selective" hedging.

The investigation for the relative performance of hedgers during and after the crisis found no evidence that East Asian firms eliminated their

foreign exchange exposure by using derivatives. Firms that used derivatives before the crisis performed just as poorly as non-hedgers during the crisis. After the crisis firms that hedged performed somewhat better than non-hedgers, but this result appears to be explained by a large post-crisis currency exposure for hedgers (an exchange rate premium), which had limited access to derivatives during this period.

2.2.6. Dhanani & Groves (2001):

The primary purpose of the research was to examine and explain the inconsistencies between the proposed and the practices of strategic (economic) risk management process.

Semi-structured interviews with corporate personnel together with internal company documents and publicly available information formed the basis of the data collection process in this study. Further, a qualitative research approach was employed to provide a basis for the establishment of understandings of the interpersonal and social construction of management decisions and actions in their own organizational settings. Twelve large listed MNCs (multi national corporations) were sampled in a purposive manner; the sample represents seven different industrial sectors.

Findings suggest that MNCs are seeking to optimize their risk management practices. Sample firms' industry and business characteristics shaped much of their use of operational measures. In some instances managers were unable to execute particular operational strategies. On comparing the results of this study with those of previous studies, MNC risk management practices since the mid-1990s appear to have transformed, with strategic risk management now playing a significant role in the overall risk management process. This study also revealed that the ERM (Exchange Rate Mechanism) crisis of 1993 together with the strengthening of the UK sterling since the mid-1990s had prompted some companies in the sample to acknowledge and act on their strategic of exchange rate risk.

2.2.7. Jonuska & Samenaite (2003):

The study concentrate on the examination whether the usage of currency derivatives corresponds to the current economic situation in Lithuania, The study focuses on the characteristics of currency exposure management in exporting companies, and on the problems encountered while using currency derivatives. Also the role of banks as suppliers of derivatives is analyzed to see what prevents the wider use of these products.

A sample of the biggest (by turnover) Lithuanian companies was selected, and a total of 18 interviews with company representatives were conducted via phone.

The research revealed that currency derivatives were not popular among exporting firms, despite their considerable currency exposure, the most important reason is that it's too costly. Companies also seem to lack practical experience in applying currency derivatives and mistrusts banks.

2.2.8. Popov & Stutzmann (2003):

The research investigated how two Swiss companies manage their foreign exchange risk. The purpose is to review the theory about foreign exchange risk management and to compare it with what is done in practice.

The research was conducted by a case study method on two medium-size companies in the same industry. The data were collected using interviews with the persons responsible for the management of foreign exchange risk in these companies. Also questionnaires were sent to those persons.

The study found significant differences in the policies adopted for managing foreign exchange risk. Notably, in the choice of the type of

exposure to cover and in the hedging instruments used. In addition, forwards and netting were the most instruments used, while transaction exposure was the most managed foreign exchange exposure. Translation and economic exposures were not well identified and managed because of the doubt of the benefit gained from managing these exposures and the complexity of them.

2.2.9. El-Masry (2003):

Motivated by that earlier research did not fully support the financial theory that any change in an exchange rate should affect the value of a firm or an industry, El-Masry investigates contemporaneous and lagged exchange rate exposure of UK non-financial companies listed on the London Stock Exchange, during the period from 1981 to 2001.

The sample period was split into three sub-periods: Pre-ERM (European Exchange Rate Mechanism), In-ERM and Post-ERM sub-periods. Therefore the study also aimed to identify the sensitivity of industries stock returns to exchange rate movements over these three sub-periods.

The findings showed that a higher percentage of UK industries are exposed to contemporaneous exchange rate changes that those reported

of previous studies, there was also evidence of significant lagged exchange rate exposure which shows some market inefficiencies.

Generally, the sensitivities of UK industries stock returns to exchange rate fluctuations are most evident in the period before joining the ERM and after departure from the ERM. The proportion of industries with a significant exchange rate exposure declined when Sterling Pound was in the ERM and increased again when the UK left it.

2.2.10. Fang & Miller (2004):

The study revises the weak relationship between exchange rate depreciation and exports for Singapore. Previous research that investigated the responsiveness of exports to exchange rate depreciation generally concluded that exports react increasingly to exchange rate depreciation.

To provide evidence, the study used bilateral exports between Singapore and the U.S. on a monthly basis from January 1979 to October 2002. Seasonally adjusted real export revenue equals nominal export revenue in domestic currency deflated by the consumer price index (CPI).

Research converted the bilateral nominal exchange rate, defined as the Singaporean currency price of the U.S. dollar, into a real exchange

rate by multiplying the nominal rate by the ratio of the U.S. CPI to the Singaporean CPI. Foreign income equals US industrial production with base year 1995. All data came from the International Financial Statistics and Direction of Trade of the IMF. And the study employed bivariate GARCH-M modeling technique to estimate the effects of exchange rate depreciation and its risk on exports.

The results found that the effect of exchange rate depreciation on exports is positive but insignificant. Second, time varying real exchange rate risk exhibits a significant negative effect on exports of substantial magnitude. Third, the exchange rate risk effect dominates the depreciation effect in magnitude, leading to a negative net effect of exchange rate changes on export revenue.

2.2.11. Mahmod, Rubil & Sibhatu (2005):

The study object is to asses if the family and non family firms differ in their decision making to currency exposure management. The effect of the involvement of family members in the management of the currency risk is also studied.

The population of the study were Swedish family and non-family owned businesses and small & medium enterprises (SME) that are engaged in international trade, the sample was selected with respect to

the variables to be studied (type of ownership, foreign currency exposure, involvement of family members, managers awareness of foreign exchange risk and the use of the hedging techniques) .

The analysis has shown that there is a difference between family and non-family owned firms in which fewer family firms were practicing hedging than non-family firms. Although the revealed information that awareness of the effect of the foreign exchange exposure within the management of both types of firms is the same. Also the types of hedging techniques employed are relatively the same.

2.2 Comments on Previous Studies

Previous studies were conducted upon different objectives and visions around the foreign exchange rate risk. [Allayannis, Brown & Klapper, 2001] dealt with the rationality behind managing such a risk.

Many studied the impact of exchange rates movements on the firm such as [Karasoy, 1995], [Bradly & Moles, 2000], [El-Masry, 2003] and [Fang & Miller, 2004], an investigation of the wide use of the exchange rate risk management techniques was held by [Belk & Glaum, 1990], [Batten, Mellor & Wan, 1993] and [Jonuska & Samenaite, 2002]. Other studies were conducted to examine the theory about foreign exchange risk management and what is done in practice, studies such as [Brucaite

& Yan, 2000], [Dhanani & Groves, 2001] and [Popov & Stutzmann, 2003].

However most of the literature found support studies undertaken to examine cases in developed countries, very few were found to support cases in developing countries and that is the most distinguishing feature of this study, which is conducted on Jordanian firms as the case of the study, and Jordan is considered to be one of the developing countries which has a unique position in the Middle East.

CHAPTER THREE

THEORETICAL BACKGROUND

3.1 Risk Management:

3.1.1 Identification.

3.1.2 Measurement.

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3.3 Foreign Currency Risk Identification and Relevance.

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3.3.4 Relevance of foreign currency risk.

3.4 Foreign Currency Risk Measurement.

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3.4.2 Economic exposure measurement.

3.4.3 Translation exposure measurement.

3.5 Foreign Currency Risk Management.

3.5.1 Internal hedging (natural hedging).

3.5.2 External hedging.

3.5.3 Rationality behind hedging.

CHAPTER THREE

THEORETICAL BACKGROUND

3.1 *Risk management:*

In order to approach foreign currency risk issues, a briefing of the general concepts of risk management will be discussed in this section of the study.

3.1.1 Identification.

Risk management can be described as the "performance of activities designed to minimize the negative impact (loss) of uncertainty (risk) regarding possible losses"(Schmit and Roth, 1990, p.457)

Also Risk management is defined as "a systematic process for the identification and evaluation of pure loss exposure faced by an organization or an individual, and for the selection and implementation of the most appropriate techniques for treating such exposure."(Radja, 1997, p.40).

Generally, risk management is the process of measuring, or assessing risk and developing strategies to manage it. Strategies include transferring the risk to other party, and accepting some or all of the consequences of a particular risk.

Financial risk, on the other hand, is the practice of creating value in a firm by using financial instruments to manage exposure to risk. Similar to general risk, financial risk management requires: (1) identifying the sources of risk, (2) measuring risk and plan to address them. As a specialization of risk management, financial risk management focuses on when and how to hedge using financial instruments to manage costly exposures to risk.

3.1.2 Measurement

Once identified, risk should be measured in order to assess its importance. When measuring a risk, two concepts are crucial: loss frequency and loss severity. The later indicates the total amount of loss that a company could face, while loss frequency shows how often a loss is expected to occur. Multiplying one by the other gives future expected losses. At this stage, forecasting models are used to predict losses as well as different rates (exchange, inflation and interest rate) and to estimate their influence on the company's earnings (Brucaite & Yan, 2000).

3.1.3 Management

Once risk have been identified and assessed, all techniques to manage the risk fall into one or more of these following four major

categories: **First** is simply to avoid risk. However, this technique is often not applicable; a firm has to accept certain level of risk and can't simply avoid it. A **second** option is to control losses, which consist of trying to reduce the frequency and severity of losses. A **third** technique consists in choosing a retention level. The firm sets a level up to which it accepts to lose money. It consists in taking few risks with high frequency but low severity. The advantage is that it lowers the expenses, encourages loss prevention and increases cash flows. A **fourth** technique consists in transferring the risk. When transferring the risk to an insurance company, the firm gets indemnified after a loss and can continue operating. The disadvantages are that the premium represents often a large cost. It is a time consuming to set insurance contracts, and finally since losses are covered risk, managers are less careful. In order to choose a particular technique, a few factors have to be weighted, namely: cost, liquidity requirements, accounting and tax implications and the risk itself (Brucaite & Yan, 2000).

Risk management objectives include survival targets of the firm, such as stability of earnings, continued growth and social responsibility. To conclude, organizations have motives to address risk and uncertainty and this motivation gives rise to risk management.

3.2 *Exchange Rate Definition*

Before identifying foreign currency risk, an explanation of the exchange rate is logical in order to understand the risk that is related to it.

The exchange rate of a country's currency is simply the price of that currency relative to that of another country. For example, if the exchange rate of the Jordanian dinar is a (0.709) to the U.S dollar, then it takes just over (0.709) of Jordanian dinar to purchase one U.S dollar.

The determination of the exchange rate is assigned through the **exchange rate regime,** which is the way a country manages its currency in respect to foreign currencies and the foreign exchange market. It is closely related to monetary policy and the two are generally dependent on many of the same factors.

Exchange rate systems can be classified according to the degree by which exchange rates are controlled by the government as [Madura, 2003, p170]:

1) *Fixed exchange rate.*
2) *Floating exchange rate.*
3) *Managed floating exchange rate.*
4) *Pegged exchange rate.*

In a **Fixed exchange rate** system, exchange rates are either held constant or allowed to fluctuate only within very narrow boundaries. In

the **floating exchange rate** system values are determined by market forces without any intervention by the government. The **managed floating exchange rate** system is a mix of the earlier stated systems in which exchange rates are not restricted by boundaries but are subject to government intervention. Finally in the **pegged exchange rate system** a currency's value is pegged to a foreign currency or a unit of account and moves inline with that currency (or unit of account) against other currencies.

The Central Bank of Jordan (CBJ) began operations in 1965, and since then the dinar has been managed under various softer peg arrangements. Until 1975, the dinar remained pegged to the British pound. During 1975–88 it was pegged to the SDR (Special drawing rights), but with a fluctuation margin of 2.25 percent.

Since it was introduced in 1950, the Jordanian dinar has always been under some kind of fixed or semi-fixed exchange rate regime, with the exception of 1988–89 when it was devalued. The dinar was initially (1950–64) issued under a currency board, using the pound sterling as an anchor.

In 1988, following intense pressure in the foreign exchange market, the dinar was allowed to float, but it was pegged again in May 1989 to the five currencies then comprising the SDR basket. Between 1989 and October 1995, the peg was adjusted frequently with the aim of ensuring

competitiveness. Since October 1995 the dinar has been firmly pegged to the U.S. dollar (Sedik & Petry, 2006).

3.3 Foreign Currency Risk Definition and Relevance.

Foreign currency risk is identified as the magnitude and likelihood of unanticipated changes in exchange rates and inflation rates in the value of foreign and domestic currency (Oxelheim & Wihlborg 1987). Also this risk can be defined as the additional variability in a firm's earning due to unexpected currency fluctuations (Jacques, 1981). According to Shapiro (1996) foreign exchange risk is the degree to which a company is affected by exchange rate change. In other words, foreign currency risk is what will affect a company's performance by exchange rate movements.

Generally, companies are exposed to three types of foreign exchange risk, transaction exposure, economic exposure and translation exposure. A briefing of these types is presented next.

3.3.1 Transaction Exposure

Transaction exposure occurs when a company trades, borrows or lends in a foreign currency. All these operations involve time decay between the commitment of the transaction and the receipt or delivery of the payment. During this time interval exchange rates could probably

change and the company is exposed to a risk that could be positive or negative. (Popov & Stutzmann, 2003).

For example suppose we have the case of a local Jordanian importer and a foreign French supplier. If the importer pays in the currency of the supplier (€ Euro) then it is the importer who carries the risk when he buys the Euros in order to pay the supplier. Alternatively, if the importer pays in his own currency (Jordanian dinars) then the exporter is the one that carries the risk

3.3.2 Economic exposure

Economic exposure measures the change in the present value of the firm resulting from any changes in the future cash flows of the firm caused by an unexpected change in the exchange rates.

Future cash flows can be divided into cash flows resulting from contractual commitments and cash flows from anticipated future transactions. In some way, economic exposure includes transaction exposure in itself.

Transaction exposure is a part of economic exposure comprising future cash flows resulting from contractual commitments and denominated in foreign currency. However a clear distinction between transaction and economic exposure must be done. Transaction exposure arises from the firm's contractual commitments and the amounts to be paid or received are known. With economic exposure these amounts are

uncertain and based on estimates. Economic exposure can be defined as the future effect of foreign exchange on liquidity, operations, financial structure and profit.

Economic risk arises, for example, when a firm incurs costs in one currency and generates sales in another. In this case, changes in foreign exchange rates affect the competitive position of the firm. Profits may decrease if the cost currency appreciates against the sales currency. This will certainly change the expected cash flows and thus the value of the firm, which is the present value of these cash flows. Price changes are another component of a firm's economic exposure because they affect future cash flows. Economic exposure can arise, because the competitive position of a company could be affected by a given exchange rate volatility (Popov & Stutzmann, 2003).

Different factors can affect the future cash flows of a company, and hence it's economic exposure, the investment policy of the company, or external factors such as political crisis in a country that would affect the level of sales. For example, it's difficult to identify and quantify this kind of risk as it may involve movements in currencies that the firm has no physical dealing with.

3.3.3 Translation exposure

Translation exposure arises from converting financial statements expressed in foreign local currencies into the home currency. When a

multinational company consolidates the results of all its subsidiaries, it has to present a final report of to shareholders and the numbers in this document should be expressed in one currency.

All foreign currency denominated assets and liabilities as well as revenues and costs have to be translated in one basic currency. Assets, liabilities and equity on a balance sheet, also items in the income statement are expressed in historical values and the foreign exchange rate is expressed at the value that its traded at the end of the accounting period is most probably not the same foreign exchange rate when the accounts were booked. If a company does this conversion at a new foreign exchange rate, exchange losses or gains will result. Thus, the question is at which exchange rate the accounts should be translated it could be at the rate of exchange at the balance sheet date, at the rate of exchange at the time when the asset was acquired or the liability incurred, or at the rate of exchange mid-way through the trading year (Brucaite & Yan, 2000).

Translation exposure depends on the translation method used. The *monetary/non-monetary* and the *current/non-current* methods are the most popular among these methods. Monetary/non-monetary method translates monetary assets and liabilities at the current rate and non-monetary assets and liabilities at the historical rates. Current/non-current method translates current assets and liabilities at the current rate of exchange (closing rate at the date of the balance sheet), and all non-

current assets and liabilities (such as fixed assets and long term debt) are translated at the historical exchange rates.

Translation risk recognizes only items already on an accounting balance sheet. In practice, translation exposure tends not to be hedged by products that involve the physical exchange of currency and sometimes not at all hedged (Popov & Stutzmann 2003). Actually, losses and gains from this particular exposure are only book losses and gains, and there is no cash flow effect in the short term (they are not realized over the reporting period). Cash flow gains and losses occur, however, in case of liquidation. Some of the recommendation of the financial literature is not to hedge translation exposure.

3.3.4 Relevance of Foreign Currency Risk

Some have argued that foreign currency risk is irrelevant. These arguments, in turn, have resulted in counterarguments. Some are summarized next (Madura, 2003, p300).

Purchasing Power Parity (PPP) is an argument for foreign currency irrelevance; it argues that exchange rates movements are just a response to differentials in price changes between countries. Therefore, the exchange rate effect is offset by the change in prices.

PPP does not necessary hold because exchange rates will not necessary change in accordance with the inflation differential between the

two countries. Since a perfect offsetting effect is unlikely, exchange rate movements may indeed influence the firm's competitive capabilities.

Currency diversification argument states that if a firm is well diversified across numerous countries, its value will not be affected by exchange rate movements because of offsetting effects. It is naive to presume that exchange rate effects will offset each other just because a firm has transactions in many different currencies.

The investor hedge argument is another argument for exchange rate irrelevance is that investors in corporations can hedge their risk on their own. This argument, however, assumes that investors have complete information on the corporate exposure to exchange rate fluctuations as well as the ability to correctly insulate their individual exposure.

3.4 Foreign Currency Risk Measurement.

After defining the types of exchange rate risk that a firm is exposed to, a crucial aspect in a firm's exchange rate risk management decisions is the measurement of these risks. Measuring currency risk may prove difficult, at least with regards to translation and economic risk (Papaioannou, 2006).

3.4.1 Transaction Exposure Measurement

In order to measure transaction exposure, three techniques can be used. The firm can measure the **variability** of each currency in which it

has some transactions. The first step is to identify the currencies in which the transactions will be settled. Then measuring the volatility of each currency based on historical data and this step could be used through calculating the standard deviation for each currency. This will give an idea of the exposure.

For example, consider a Jordanian firm with a transaction of an amount of 100,000 Euros, the exchange rate JD[3]/EUR is at 0.943 and the historical measured volatility is 10% (which represent the standard deviation of the exchange rate). At the actual rate this corresponds to 94,300 JD. The volatility implies that the exchange rate can increase or decrease by 10%, move up to 1.037 or move down to 0.848. With a rate of 0.849the firm will have to pay less, around 84,870 JD, and with a rate of 1.037 the firm will need to pay 103,730 JD. However, when using this approach a firm should be cautious; historical volatility is not accurate predictor of future volatility. Moreover, this technique cannot aggregate two different exchange rate exposures.

For example, a transaction is exposed to the JD/EUR exchange rate, and another exposed to the JD/JPY[4] exchange rate, the firm cannot simply add these two amounts in order to obtain the total exposure. These

[3] JD: Jordanian Dinars
JD/EUR: the amount of Jordanian dinars needed to buy 1 Euro
4 JYP: Japanese Yen

risks are different because these exchange rates represent different volatilities and different factors affect them .

The **correlation** between two currencies is also used to measure the exchange rate exposure. The correlations among currency movements can be measured by their *correlation coefficients.* Which indicate the degree to which two currencies move in relation to each other for asset correlations of a portfolio. Consider three currencies, **X**, **Y** and **Z** (base currency). Based on historical data a negative correlation between **X** and the **Y** was found. That means when **X** increases with respect to **Z**; a decrease of the **Y** with respect to **Z** is noticed. Negative correlations are important for the firm since an increase in one currency is offset by a decrease in another currency; thus there is no need to hedge these two currencies. Even if appealing, this approach has to be practiced with caution, as for volatility past correlations are not an accurate estimator of future correlations .

Finally, an increasingly implemented technique used for measurement is the **VaR (Value-at-Risk)** model. Using either past data or simulation, the company can estimate the potential loss over the next days given a certain confidence interval. The main advantage of this technique is that it aggregates all data into one single number .

3.4.2 Economic Exposure Measurement

Economic exposure can be measured by two techniques: **earnings sensitivity to exchange rates** and **cash flow sensitivity to exchange rate** (Madura, 2003, p315). To measure the earnings sensitivity, the firm needs to separate each line of its income statement and analyze the effect of an increase or decrease of currency. Consider a Swiss firm selling a product in Germany (in Euro and in Swiss Francs) and in Switzerland (in Swiss Francs), which wants to asses the impact of a stronger Euro. Three main effects will appear on the cash inflows. First, local sales will increase due to a lower foreign competition (for Swiss customers German products appear more expensive). Second, the sales denominated in Swiss Francs to Germany will increase, since the products are getting less expensive. Third, even the Euro denominated sales to Germany could increase since the number of products sold may decrease but they are translated in home currency at a higher rate. To conclude, the effects on economical exposure are difficult to estimate because of the numerous interactions between the parameters.

Cash flow sensitivity can also be implemented. Since firm value represents the present value of future cash flows, exchange rate exposure is the sensitivity of firm value to exchange rate changes. Another

approach is to define exchange rate exposure in terms of a regression of the firm's total value (or stock return) on the exchange rate. Exchange rate exposure could be thus measured as the slope coefficient between the firm's value (or stock return) and the changes in the exchange rate .

3.4.3 Translation Exposure Measurement

Translation exposure exists when a firm has foreign subsidiaries and needs to translate their earnings into its base currency.

To measure translation exposure the firm needs to estimate future expected earnings of each subsidiary and then needs to apply a sensitivity analysis in order to evaluate the potential effect of fluctuations of exchange rates (Brucaite & Yan, 2000).

3.5 Foreign Currency Risk Management

Risk and in particular foreign exchange risk can be managed in various manners. This section focuses on hedging the risk. Hedging is defined as all actions taken to change the exposed positions of a company in one currency or in multiple currencies (Prindl, 1976). Hedge is taking an offsetting position to minimize or protect against the loss by counterbalancing one transaction, against another. A distinction between the hedging techniques can be made: there are internal and external hedging techniques. The former includes all the techniques that do not

require external parties. External hedging techniques deal mainly with financial derivatives such as futures ,forwards, options and swaps.

When choosing between different types of hedging, the risk manager must compare costs, taxes, effects on accounting conventions and regulation. Several objectives can be assigned to risk management, the most common objectives are: to minimize foreign exchange losses, to reduce the volatility of cash flows, to protect earnings fluctuations and to hedge the risk irrespective of the views on foreign exchange risk. Most corporations do not use only one technique but rather determine which technique is the most suitable for a particular case (Brucaite & Yan, 2000).

3.5.1 Internal Hedging (Natural Hedging)

Before purchasing external hedges, the company should first look for internal hedges. Which have a relatively low cost.

i. Matching

Matching is a way to decrease currency exposure by covering cash outflows by inflows in the same currency. The main advantage of natural hedging is that transaction exposure can be effectively covered without any transaction cost (Brucaite & Yan, 2000).

Even though the concept of matching is simple, there are a number of complexities associated with using the technique. For example, the time

periods used by companies in the management of their exposures will vary with the nature of their business. If a chosen period is too short, then the number of time periods will quickly escalate, adding work to the data collectors and increasing the number of specific decisions. It is likely, therefore, that the exposures being matched out will be those arising over a period as long as a month, or even more.

ii. Diversification

Currency diversification can limit the potential effect of any single currency's movements on the value of the firm.

The dollar value of future inflows in foreign currencies will be more stable if the foreign currencies received are not highly positively correlated. The reason is that lower positive correlations or negative correlations can reduce the variability of the dollar value of all foreign currency inflows. If the foreign currencies were highly correlated with each other, diversifying among them would not be a very effective way to reduce risk. If one of the currencies substantially depreciated, the others would do so as well, given that all currencies move in random. (Brucaite & Yan, 2000).

iii. Netting

Netting is probably one of the most used methods. The idea is to reduce the number of transactions that a firm needs to make in order to cover an exposure (Madura, 2003, p615). It requires the firm to have a

centralized organization of its cash management. The company collects foreign currency cash flows between transactions and groups them together so as an inflow offsets an outflow in the same currency. Consider a Jordanian company with two transactions: one in Germany and one in the France. The German company owes the Jordanian company 100,000 Euro. The Jordanian company owes the French company 150,000 Euro. Netting this two flows leaves the Jordanian company with a payment of 50 000 Euro. Thus total amount of the exposure has been reduced and in this way the risk is reduced. This technique is repeated for each currency to which the company is exposed . And it can be used for more than two transactions.

iv. **Leading and lagging**

Companies can accelerate or delay the original payment. In this case it is called leading and lagging. If the currency of a transaction is sought to appreciate it may accelerate its payment (leading) and realize the payment before the currency appreciates. The reverse is true if a currency is expected to depreciate, then the company will delay its payment (lagging). However, the firm should not only take into account the gain or loss from the currency but also the cost from increasing /decreasing the liquidity. This tool is widespread for hedging transaction exposure since

it allows for liquidity and risk management at the same time (Madura, 2003, p357).

v. Long Term Structural Changes

Restructuring is a more complex task than hedging a currency transaction. However, once the restructuring is finished, the reduction of the exposure has a long-term effect. The firm can act on four parameters: (1) change the sales, (2) change the foreign suppliers, (3) change the foreign production factories or (4) change the foreign debt. The idea is to change the relationship between cash inflows and outflows. Restructuring is a very appropriate technique to manage economic exposure. However, a main disadvantage is that this tool is quite difficult to apply and cannot be reversed immediately (Beenhakker, 2001).

vi. Price Adjustments

Price adjustments can be made in different manners. First, when the local currency of a company is devaluating, it can increase the price, so as to cancel the effect of devaluation. This technique is particularly used in countries where devaluation is high and where derivative markets are inefficient. One of the disadvantages of that method is that prices cannot be raised without any consideration about competitors because if the price increases too much the customer will choose an equivalent and cheaper product from a competitor. In the same logic, a firm can increase the

export price. But then the price adjustment is even more complex, since the company has to face not only local but also international competitors. Second, the company can change the currency of billing. Third, the firm can use export currency of billing to transfer profits from one affiliate to another. The purpose is to raise or lower inter group selling prices by billing rate adjustment so that profits appear in hard currency or low-tax companies. This technique is very aggressive and can be forbidden by regulations and laws (Beenhakker, 2001).

vii. Asset/Liability Management

Asset liability management (ALM) is related to leading/lagging and has the same rationale :for currencies likely to appreciate, increase assets and reduce liabilities. For currencies likely to depreciate do the reverse. To illustrate, suppose a currency appreciates. A firm will then increase its assets by increasing investment and reduce its liabilities by reducing the short-term debt. The long-term assets/liabilities are more difficult to change. Long-term debt cannot be reduced easily and buildings cannot be sold promptly. ALM can be used for hedging translation exposure (Crouhy, Galai & Mark 2006) .

3.5.2 External Hedging

When internal hedging is not enough to manage successfully exchange rate risk, companies can get into contact with banks or go to the

market and do external hedging. External hedging is more expensive and more complicated than internal hedging and not all companies can afford it, but it is quite successful and many firms use it. External hedging is done by using foreign exchange derivative contracts such as forwards, futures, options or swaps. We can regroup these instruments into two main categories: the first category contains instruments such as currency forwards and futures, and money market contracts. With these instruments the exchange rate is fixed at the moment when the risk appears. The main disadvantage with these instruments is that they cannot benefit from a favorable movement of the exchange rate.

The second category contains instruments such as currency options that protect the company from an unfavorable movement of the exchange rate and at the same time keep the possibility of benefiting from a favorable movement of exchange rates. In the following lines, a brief description of these instruments is provided (Brucaite & Yan, 2000).

i. Currency Forwards

The principle when hedging with forwards and futures is to take an opposite position to the position the firm has on the forward market. An exporter who supposed to receive money is exposed to the risk of a devaluation of the foreign currency. He will then sell forwards (or futures) in order to gain from this possible devaluation and thus

compensate for the loss incurred. On the other hand; an importer has a foreign currency commitment and he could be subject to an appreciation of this currency .The importer will then buy forwards (or futures) and thus neutralize the foreign exchange risk (Madura, 2003, p336).

Foreign exchange forward contracts are usually traded with banks or other financial institutions in the over-the-counter market. The underlying asset is a currency and the two parties of the contract agree on a predetermined exchange rate for a given future date. A company agrees to buy or sell an amount of a given currency at a future date. The forward exchange rates for a three months, six months or nine months contracts, for example, are known now, and it costs nothing to go through such an agreement. Nevertheless, the commitment is binding for the both sides of the contract. Thus, if a company receiving Euros in three months wants to be sure to get a given amount of US dollars, its Treasurer has to contact a bank and enter into a short forward contract or in other words, sell the Euros in three months to the bank at a given predetermined exchange rate and receive the US dollars .

Forward contracts are available in most major currencies but not in less traded or very volatile currencies. Hedging against exchange rate movements with forwards is not possible in all countries especially in those that have no advanced money markets .By covering in the forward exchange market, a firm is indifferent to the movements of exchange

rates. It avoids the risk of losing as a result of unfavorable movements in the exchange rate but at the same time it gives up the chance of gaining in the case of a favorable movement. The company takes a neutral position and this position costs nothing. Moreover, forwards can be attractive because they typically do not show up on the balance sheet. Forwards are well suited for hedging all three types of exposure (Smithson, 1998).

ii. **Money Market Contracts**

A company can hedge in the same way by using the money market. Considering the previous example, with an exporting company receiving Euros in three months. The treasurer does not know what the Euros will be worth in three months. He could simply borrow Euros now from a bank and convert them to US dollars at the spot rate on that date. Thus he has a Euro debt, and he can repay this debt when he receives the Euros in three months. The company is not concerned with future exchange rate movements. It has the amount of US dollars needed and can deposit it in a bank and thus earn the three months' interest. This operation permits the firm to dispose immediately with money and not to wait three months for the Euros. And so the exchange rate risk is covered. The only problem with this method is that it is not always easy to borrow money especially for small companies and big amounts of funds (Beenhakker, 2001).

An importer having a foreign currency debt can create a short-term deposit in the foreign currency that it will need in the future. For

example, the company **X** needs $1,000,000 in New Zealand dollars (NZ$) in 30 days and it can earn 6 % annually (0.5 % for 30 days) on a New Zealand security over this period. In this case the amount needed to purchase a New Zealand one-month security is:

$$\text{Deposit amount to hedge (NZ\$) payables} = \frac{\text{(NZ\$) } 1{,}000{,}000}{1+0.005} = \text{NZ\$ } 995.025$$

Assuming that the New Zealand dollar's spot rate is $0.65, then $646.766 is needed to purchase the New Zealand security (computed as NZ$995,025*$0.65). In 30 days, the security will mature and provide NZ$1,000,000 to **X** Company. And can then use this money to cover its payables. Regardless of how the New Zealand dollar exchange rate changes over this period.

This method of hedge can be used also if the firm does not have the liquidity (the cash balance) to deposit. The technique requires two money market positions. (1) Borrowed funds in the home currency. (2) A short-term investment in the foreign currency.

Considering the example above, the hedge can be used through the following steps:

Step 1. Borrow $646,766 from a US bank; assume a 0.7 % interest rate over the 30-days loan period.

Step 2. Convert the $646,766 to NZ$995,025. Given the exchange rate of $0.65 per New Zealand dollars.

Step 3. Use the New Zealand dollars to purchase a New Zealand security that offers 0.5 % over one month.

Step 4. Repay the US loan in 30 days, plus interest; the amount owed is $651,293 (computed as $646,766 * 1.007).

However. If a firm expects receivables in a foreign currency, it can hedge this position by borrowing the currency now and convert it to the home currency. The receivables will be use to repay the loan. For example if a Jordanian firm expecting to receive 1,000,000 Euros in 90 days, then it can borrow just enough money to repay the loan by the receivables that will be due in 90 days. Assuming an annual interest of 8 percent (2 percent for the 90 days).

$$\text{The amount to hedge the Euro receivables} = \frac{€\ 1000,000}{1+0.02}$$

$$= €\ 980,392.$$

iii. Currency Futures

A similar contract to the forward is a futures contract. Currency futures exist since 1972 when they were introduced for the first time. Nowadays, major currencies on which futures exist are the € (Euro), the £ (Great Britain Pound), the CHF (Swiss Franc), the ¥ (Japanese Yen), the Canadian dollar and the US dollar. In practice, this contract is not often used to hedge foreign exchange risk. The London International Financial Futures Exchange IFFE) closed down its futures currency

market in 1990 because of a lack of business. Actually, futures contracts require the payment of margins everyday. The size and the maturity of futures are standardized and this makes them more difficult to use in hedging strategies. Another inconvenient of a future is that it is rather rare that the amount of money to be covered corresponds exactly to a multiple of the size of the contract; one part of the position thus remains unhedged because futures are available in lots. Even though not frequently used, futures are more liquid, more regulated and more secure than forward contracts. Futures carry no counter-party credit risk because the exchange itself imposes strict credit requirements. While forwards are more flexible, they are often less liquid due to their unique structure (Smithson, 1998).

iv. Currency Options

Options on foreign currencies are an alternative to hedging in the forward or money markets (Eiteman & Stonehill, 1997, p. 151).

Payables are hedged through currency **call** options. A currency call option provides the **right** to buy a specific amount of a particular currency at a specified price (the exercise price) within a given period of time. Yet, unlike a future or forward contract, the currency call option does not **obligate** its owner to buy the currency at that price. If the spot

rate of the currency remains lower than the exercise price throughout the life of the option contract, the firm can let the option expire and simply purchase the currency at the existing spot rate. On the other hand, if the spot rate of the currency appreciates over time. The call option allows the firm to purchase the currency at the exercise price.

To illustrate this method consider an American firm which has payables of £ 100,000, three months from now. Assume there is a call option available with an exercise price of $1.60 and the premium is $.04 then the total premium equals $4,000 (100,000*$.04). The firm will subject to three scenarios illustrated in the exhibit next.

1	2	3	4	(5) = 4+3	6
Scenario	Spot rate when payables are due	Premium per unit paid on call options	Amount paid per unit when owning call option	Total amount paid per unit(including the premium) when owning call option	$ Amount paid for £100,000 when owning call option
1	$1.58	$.04	$1.58	$1.62	$162,000
2	1.62	.04	1.6	1.64	164,000
3	1.66	.04	1.6	1.64	164,000

Like currency call options, currency put options can be valuable hedging instrument for receivables with foreign currency. A currency put option provides the right to sell a specified amount in a particular currency at a specified price (the exercise price) within a given period of time. At the same principle of the call option, if the existing spot rate of the foreign currency is above the exercise price when the firm receives the foreign currency, the firm can sell the currency received at the spot rate and let the put option expire. Otherwise the firm can apply the put option to hedge against the currency depreciation (Madura, 2003, p344).

v. Swaps

Another popular instrument is the swap. In a swap, companies exchange funds directly. Two companies that have two different currency needs agree to sell each other their needed currencies at current spot rates and at the same time they agree to buy back the currencies at a given future date and a given exchange rate. It is like borrowing and lending at the same time with the same counterpart. Swaps are currently very popular and provide a long-term flexible hedge with low transaction costs (Smithson, 1998).

3.5.3 Rationality Behind Hedging

This section will focus on the dilemma whether a firm should hedge or not. Why does a firm want to protect (hedge) against foreign exchange rate fluctuations? Modigliani and Miler (1958) show that, with no

transaction costs or taxes, corporate financing policy is irrelevant. Since investors can change their holdings of risky assets to offset any change in the firm's hedging policy, the manager should not care about modifying the exposure. This idea is further developed in Logue and Oldfield (1977) and Hekman (1981). Logue and Oldfield base their theory on two propositions. First, in an efficient market, all information is included in stock prices. Hedging translation exposure has only an accounting benefit, which should not influence the investor's view of the true economic value of the firm. Second, in efficient market, currency prices adjust instantaneously to the inflation rate differential (Purchasing Power Parity), thus leaving unchanged the true economic exposure to foreign exchange risk of a firm. However, firms are facing taxes, financial distress, and agency and transaction costs (Popov & Stutzmann, 2003). This gives a rationale for hedging as explained below.

A. Taxes

Smith and Stulz (1985) show hedging can be worth because of the tax structure. Hedging reduces the volatility of pre-tax firm value, which decreases the expected taxes and increases the expected post-tax value of the firm. In the insurance field, Mayers and Smith (1982), illustrates that insurance can lead to some tax advantages. A large uninsured loss may drive revenue below zero and the company loses its tax savings. Insurance reduces the fluctuation in the taxable income.

B. Financial Distress

A firm can face a large loss and this will push it to financial distress. Financial distress is costly for the firm and therefore it will try to avoid it. For Smith and Stulz (1985), hedging reduces the expected cost of financial distress and increases the expected pay off to the firm's claimholders. By reducing the likelihood of financial distress, hedging can increase the expected value of the firm.

C. Manager's Risk Aversion

Assuming the manager is rewarded based on the firm's earnings, Smith and Stulz (1985) show that the manager's risk aversion influences the hedging policy. Assuming the manager is risk averse; he prefers to have stable revenues and will hedge. However, this hedging will not be beneficial for the shareholders. Tufano (1996) develops further this argument. Managers who are rewarded with stocks prefer to hedge more, and those compensated with options prefer to hedge less. The convexity of the options payoff induces the managers to take greater risks (reduce the hedging) because lower risk would reduce the volatility and the value of the expected utility of the option.

D. Agency Costs

After having issued debt, a company has an incentive to invest in risky projects. This will transfer the wealth from debt holders to shareholders. When the project is successful, debt holders get at most the nominal at

maturity, but face most of the risks. To protect themselves from the wealth transfer, bond holders require that the company implements some hedging (Mayer and Smith, 1982).

E. Transaction Costs

The existence of transaction costs implies that investors are not diversifying completely (Mayer and Smith, 1982). This implies that they are wiling to accept lower return on stocks with lower risk, or said differently they are willing to pay more for a firm that hedges .

F. Signaling Managerial Skill

In this setting, outside investors cannot evaluate manager's skills. Therefore managers will engage in hedging because it is a way of communicating their quality (Breeden and Viswanathan, 1996)

Some authors see hedging as adding value to the company and others consider it as irrelevant. Even though the theory is not unanimous, the practice indicates clearly that firm's do hedge their risk (Popov & Stutzmann, 2003) .

CHAPTER FOUR

METHODOLOGY

CHAPTER FOUR

METHODOLOGY

4.1 Introduction

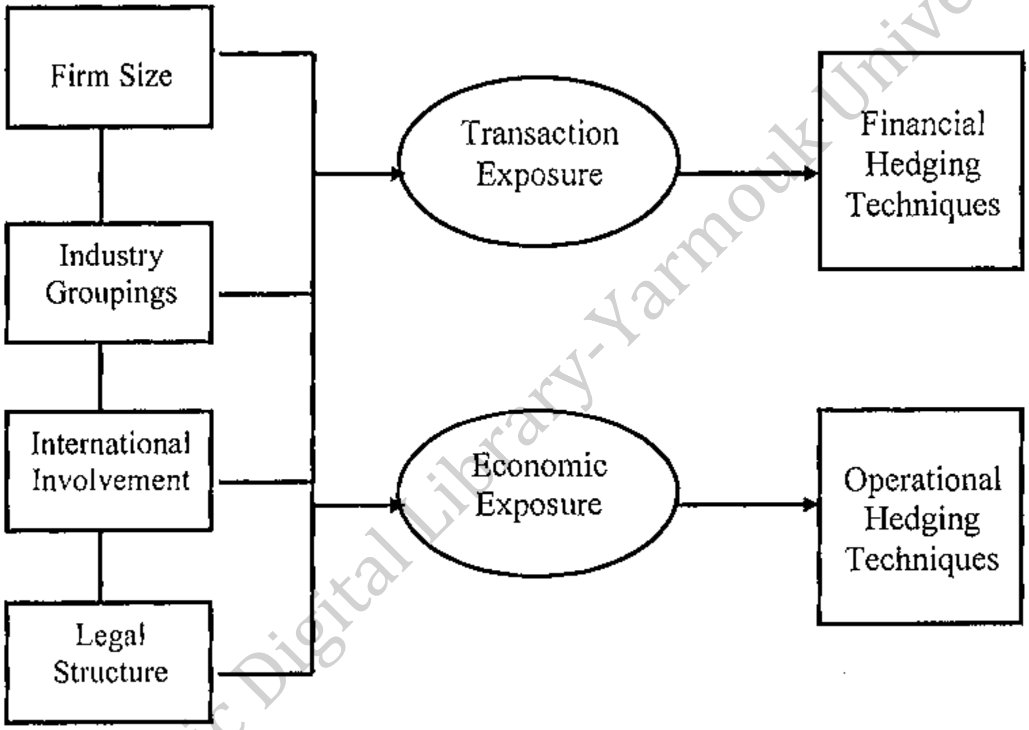
Realizing the fact that there is no common methodology or generally accepted design that fits the topic of this research. The research methodology has been developed in a way to demonstrate the model of the study, dimensions of the study, hypotheses and the aspects related to sampling, data and methods of statistical analysis.

4.2 Model of the Study

The relationships among variables under study are expressed in Chart (4-1), which is presented in the next page.

The Chart shows the firm-specific characteristics as the independent variables, which are: firm size, industry sector, international business activities, ownership and legal structure. These independent variables will present relations under two dimensions dependent variables, which are the financial hedging techniques and the operational hedging techniques. It was decided not to examine translation exposure in this research due to the existences of very few parent companies or companies with foreign branches.

Chart (4-2): The model of the study



4.3 Variables of the Study

The focus of the study is what determines the way that firms in Jordan use to manage transaction and economic exposures. Consequently, the

hedging strategies that the Jordanian firms adopted are designed as dependent variable.

4.3.1 The Dependent Variables

A. *Financial hedging techniques.* These techniques are used to hedge transaction exposure, and they are different among each other in terms of the sophistication level of using them. It starts with using internal hedging techniques and moves to a more complex hedge by using money market techniques and finally using currency derivatives that represent a more risky and expensive instruments to hedge the transaction exposure.

B. *Operational hedging techniques.* Which is used to hedge economic exposure. These techniques are also different in terms of risk and cost levels of using them. It starts at sourcing inputs in the same currencies as sales are made to finally conducting major actions such as altering the currency that production/operations occur following movements in foreign exchange rates.

4.3.2 The Independent Variables

Company specific characteristics were used as the independent variables to establish the study of relations to the management practices concerning foreign currency risk.

These characteristics are:

i. Firm size. Total annual sales, equity capital (capital raised from owners) and market value of the firm's assets will be used as proxies for the firm size.

ii. International business involvement. This character is concerned with the degree of involvement of the firm in the foreign environment. Three variables will be used as proxies for measuring the degree of foreign involvement: First is the percentage of foreign currency sales to total sales (FS/TS). Second is the percentage of foreign currency costs to total costs (FC/TC). Third is the percentage foreign currency debt to total debt (FD/TD).

iii. Firm's sector. The financial and operational hedging techniques across different industries will be examined. The research covers Jordanian commercial, manufacturing and other firms (mining & processing, agriculture, building & construction) [5]

[5] Jordan Companies Control Department www.ccd.gov.jo (comp. statistics/ main economic sectors)

iv. The legal form of the firms. The main legal forms of Jordanian firms are sole trader, partnership, closed limited corporations and public limited corporations[6].

The different characteristics of the firms are presumed to have its effects on foreign currency risk exposure because of the different structures, markets and different cash flows of the firms among theses characteristics.

4.4 Population and Sample of the Study

This study is performed by exploring the impact of selected company specific characteristics to the adoption of foreign currency risk management techniques. To achieve this goal, a sample of the largest non-financial firms, in-terms of annual sales and annual income operating in Jordan was used as a unit of analysis. Using a list[7] of the major taxpayers in Jordan that contains 456 firms. Only 310 firms from different sectors and types met the criteria of the study[8].

The population of the study was sub-grouped in terms of economic sectors into three strata (subgroups) which are: Manufacturing, commercial and other sectors. These subgroups are unequal in size, it is

[6] Jordan Companies Control Department www.ccd.gov.jo (companies statistics/ types of companies)

[7] "Major Taxpayers in Jordan" obtained from Jordan's Income & Sales Tax Department.
[8] Financial firms were excluded and also any taxpayer without a form of legal entity.

preferred to use the proportionate (unequal-size) stratified random sampling [Sekaran, 2003] to represent the three subgroups. This ensures the selection of a representative sample. Thus, 120 subjects are selected according to specific criteria that are mentioned in Table (4-1).

Table 4-1: Sample Selection Criteria

Group	*Sample Size (n=120)*
Manufacturing firms	45
Commercial firms	60
Other	15

4.5 Data Collection Techniques

Collection of data needed for this study has been done through two sources, secondary and primary.

4.5.1 Secondary Sources

The secondary source represents the related information that are found in books, articles, periodicals, working papers, e-papers, unpublished studies such as dissertations and theses. In addition to some related and valuable websites. After a thorough consideration of the related literature, the theoretical framework is developed.

4.5.2 Primary Sources

A questionnaire[9] in the Arabic language is constructed using different scales such itemized rating scales, which is proper for measuring anchors as needed. Also category scales was used to identify specific characteristics of the subjects. The questionnaire consists of three parts representing general information of the subjects, transaction exposure part and economic exposure part. Finally an identification of some techniques for foreign currency risk management was provided in order to ensure the full understanding of the question asked.

The questionnaire is distributed to the respondents to be completed by them in their work locations and returned back to the researcher. They are reminded one to two days before the due date to return the questionnaire, if not already done. Respondents targeted were mainly financial managers and/or treasurers.

4.6 Data Analysis Techniques

After the data are collected through the previously defined instrument, they are coded and entered through the Statistical Package for Social Sciences (SPSS) in order to be statistically analyzed.

[9] See appendix (1)

Some known statistical techniques are employed for testing the hypotheses of the study. Descriptive statistics, by which frequencies, ratios, means and standard deviations are provided as measures of central tendency and dispersion. In addition to the *Kruskal-Wallis* one-way analysis of variances (ANOVA).

(ANOVA) is used to examine the significance of statistical differences. This technique compares the variances between groups with the variances within groups. In case such significant statistical differences between groups do exist. The one-way (ANOVA) is a test used when the dependant variable is on an ordinal scale, and the independent variables are nominally scaled.

CHAPTER FIVE

DATA ANALYSIS

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CHAPTER FIVE

DATA ANALYSIS

5.1 Introduction

This chapter presents and analyzes the data obtained by the questionnaire, after their goodness is examined. The statistical procedures, which are indicated in the previous chapter, are applied to analyze the characteristics of respondents and to test the hypotheses of the study.

5.2 Responding Rates

Data needed were obtained through the distribution of 120 questionnaires to three strata of firms in a proportionate manner to their total size in the population.

The groups of respondents are commercial, manufacturing and other firms. Out of the 87 returned back, 72.5% is a retrieval rate, only 73 copies are considered valid for analysis, which represents about 61% response rate.

Response rates and the number of valid questionnaires retrieved by each group are shown next in Table (5-1).

Table (5-1) Response Rates

Group	No. of questionnaires		*Retrieval Rate*	No. of questionnaires		*Net Response Rate*
	Distributed	*Returned*		*Invalid*[10]	*Valid*	
Commercial Firms	60	45	75%	11	34	56%
Manufacturing Firms	45	33	73%	2	31	69%
Other	15	9	60%	1	8	53%
Total	*120*	*87*	*72.5%*	*14*	*73*	*61%*

Due to the leading questions in the questionnaire, some companies of the sample did not answer all paragraphs of the questionnaire. The number and percentages of each paragraph are shown in table (5-2).

Table (5-2) Response Rates for Each Question

Question	**Frequency**	**Valid percent**
sectors of the firm	73	100.0
firms legal structure	73	100.0
annual sales of the firms	67	91.8
firm's Capital	70	95.9
percentage of Foreign sale's to Total Sales	70	95.9
percentage of Foreign Cost's to Total Cost's	70	95.9
percentage of Foreign Debt to Total Debt	73	100.0
existence of A/P and A/R	73	100.0
managing foreign currency risk	42	57.5
purpose of managing currency risk	28	38.3
effect of exchange rate variations on the firms activities	64	87.6
effect of capital size on managing transaction exposure risk	36	49.3

[10] Invalid questionnaire is empty, partially filled or totally filled on the same-answer basis.

effect of sales volume on managing transaction exposure risk	39	53.4
effect of firm's sector on transaction exposure risk	38	52.0
% of FS/TS *sales effect on transaction exposure risk management*	39	53.4
% of FC/TC *sales effect on transaction exposure risk management*	39	53.4
% of FD/TD *sales effect on transaction exposure risk management*	39	53.4
legal structure effect on transaction exposure risk management	38	52.0
effect of capital size on managing economic exposure risk	55	75.3
effect of sales volume on managing economic exposure risk	52	71.2
effect of firms sector on managing economic exposure risk	57	78.0
% of FS/TS *sales effect on economic exposure risk management*	54	73.9
% of FC/TC *sales effect on economic exposure risk management*	54	73.9
% of FD/TD *sales effect on economic exposure risk management*	58	79.4
legal structure effect on economic exposure risk management	57	78.0

5.3 Validity of the Research Tool

Structured questionnaire prepared to accomplish the objective of this research. The questionnaire was first approved by the supervisor then tested in the field. The mistakes and ambiguous items were corrected and amended through the field observations. The reliability analysis for the questionnaire tested using sample of 15 firms. Alpha Cronbach's[11] coefficient was estimated. The results show that Alpha Cronbach value for the items related to transaction and economic risk items was 0.90 and

[11] Cronbach's Coefficient Alpha is computed in terms of average intercorrelations among the items measuring the concept. The closer Cronbach's Alpha is to 1, the higher the internal consistency reliability.

0.72; respectively, while its value for all items was 0.87. These values of alpha Cronbach are acceptable for such kind of studies.

Table (5-3): Cronbach's Coefficient Alpha

Dimension	**Number of Items**	**Cronbach's Coefficient Alpha**
Transaction risk	5	0.90
Economic risk	3	0.72
All items	8	0.87

5.4 Characteristics of the Firms

The following part will demonstrate the features of the sample firm's and will be relevant to the company's characteristics that are involved in the analysis of the study.

5.4.1 Sectors of the Firms

Sector of the firms is one of the characteristics that are relative to the practical analysis of the study. Table (5-4) reveals that (42.5%) of the respondent are manufacturing firms, and (46.5%) of the firms belongs to the commercial sector, while the rest (11.0%) belongs to other sector (agricultural, mining ....other).

Table (5-4) Sectors of the Firm

Sector	Frequency	Valid Percent
Manufacturing	31	42.5
Commercial	34	46.5
Others	8	11.0
Total	73	100.0

5.4.2 Firm's Legal Structure

Table (5-5) indicates that about (41.1%) of firms are limited liability, while (23.3%) are public shareholdings, (16.4%) are partnerships. As for private shareholding and private companies they are represented by (8.2%) and (11%) respectively.

Table (5-5) Firms Legal Structure

Structure	Frequency	Valid Percent
Public shareholding	17	23.3
Private shareholding	6	8.2
Partnership	12	16.4
Limited liability	30	41.1
Private company	8	11.0
Total	73	100.0

5.4.3 Firm Size

The firm size as a variable was measured using three aspects; Annual sales, capital size and the market value of the firm.

The market value variable was neglected due to few response rates. Hence firm's size was measured using capital and annual sales values in Jordanian Dinars.

A. *Firm's Annual Sales*

This variable is measured through periods, with a range of 3 million JDs, to 15 million JDs or more.

Table (5-6) shows that 29.9% of firms have annual sales of less than 3 million, 37.3% with annual sales of 3-6 million JDs, both categories represent the majority of the sample. While 14.9% of firms have sales between 6-9 million, 9% between 9-12 million, and only 3% of firms have sales of 13-15 million. Firms with annual sales of 15 million or more represented 6%.

Table (5-6) Annual Sales of the Firms

Sales	Frequency	Valid Percent
<3 m	20	29.9
3-<6m	25	37.3
6-<9m	10	14.9
9-<12m	6	9.0
13-<15m	2	3.0
15 m or more	4	6.0
Total	67	100.0

B. *Firm's Capital*

The capital of the firms was categorized to four periods with a range between JOD 1m-10m.

The first category starts with firms that have a capital of less than 1 million as table (5-7) shows (44.3%) belongs to that category, 19 firms with capital between 1-5 million JDs representing 27.1% of the respondents. As for the category of 5-10 m there were 14 firms representing 20%. Finally 8.6% of firms had capitals of 10m JDs or more.

Table (5-7) Firm's Capital

Capital	Frequency	Valid Percent
<1 m	31	44.3
1-<5 m	19	27.1
5-<10 m	14	20.0
10m or more	6	8.6
Total	70	100.0

5.4.4 Extent of Firm's International Involvement

International involvement means the degree that the firm is involved in international transactions with foreign currency. This character was measured using three variables as shown next:

A. Percentage of Foreign Sales (Revenues) to Total Sales (Revenues)

Parameters of this variable begin with 0% with no foreign sales (revenues), to 100% where the firm has no local sales (sales in the Jordanian Dinars). Categories rise with a 10% rate. Responses varied

through different categories. Fourteen firms (20%) had no foreign sales, also eleven firms (15.7%) had foreign sales that represent (10%) of total sales, (11.4%) and (14.3%) of the firms fall in the categories of 40% and 50% of foreign sales to total sales respectively, other responds and categories are shown in table(5-8) below.

Table (5-8) Percentage of Foreign Sale's (Revenue's) to Total Sales (Revenue's)

% of FS/TS	Frequency	Valid Percent
0%	14	20.0
10%	11	15.7
20%	8	11.4
30%	6	8.6
40%	8	11.4
50%	10	14.3
60%	4	5.7
70%	3	4.3
80%	2	2.9
90%	0	0.0
100%	4	5.7
Total	70	100.0

B. Percentage of Foreign Costs to Total Costs

Table (5-9) shows the firms distribution through the different categories, which are arranged in a similar manner with the above foreign sales to total sales levels. 67.2% of firms had foreign costs to total costs level of 50% and more. Only 8.6% had no foreign costs, 5.7% of firms

with a 10% level of foreign costs. Finally 10% and 4.3% of firms falls in the categories of 30% and 40% of foreign costs levels respectively.

Table (5-9) Percentage of Foreign Cost's to Total Cost's

% of FC/TC	Frequency	Valid Percent
0%	6	8.6
10%	4	5.7
20%	0	0.0
30%	7	10.0
40%	3	4.3
50%	7	10.0
60%	3	4.3
70%	13	18.6
80%	13	18.6
90%	12	17.1
100%	2	2.9
Total	70	100.0

It can be noticed that the majority of the firms have a high level of foreign costs to total costs. This distribution corresponds with the fact that Jordan as a developing country with scarce resources has a certain dependence on imports of different products and raw materials from different countries around the world.

C. Percentage of Foreign Debt to Total Debt

In order to measure the flow of foreign currency to the firms cash inflow or outflow, a measuring of the percentage of foreign currency debt

to total debt was provided and the results of that measurement is shown in table (5-10).

Table (5-10) Percentage of Foreign Debt to Total Debt

% of FD/TD	Frequency	Valid Percent
0%	31	42.4
10%	3	4.1
20%	9	12.3
30%	5	6.8
40%	8	11.0
50%	5	6.8
60%	2	2.8
70%	2	2.8
80%	2	2.8
90%	5	6.8
100%	1	1.4
Total	73	100.0

A large segment of the sample, 42.4% have no foreign debt, 12.3% of the firms has 20% of foreign debt to total debt. 11.0% with foreign debt level of 40%, the rest of the firms were distributed in small groups over the different levels of foreign debt to total debt.

5.5 Foreign Currency Risk Exposure

In this part of the analysis, the research focuses on transactions exposure and economic exposure descriptions and tests of the hypotheses concerning the management of these exposures.

In order to describe the transaction exposure level in Jordanian non-financial firms, some preliminary questions were asked to draw some results. Firms were asked about the existence of accounts *receivables and accounts payables* that are exposed to foreign currency risk. The results in table (5-11) shows that (57.5%) of firms answered (yes) where (42.5%) answered negatively.

Table (5-11) Existence of Accounts Payables and Accounts Receivables

Answer	Frequency	Valid Percent
yes	42	57.5
No	31	42.5
Total	73	100.0

The next question was whether firms do manage that risk. Results showed that (66.6%) manage that risk while the rest (33.4%) do not. This result is shown in table (5-12).

Table (5-12) Managing foreign currency risk

Answer	Frequency	Valid Percent
yes	28	66.6
No	14	33.4
Total	42	100.0

For the firms that do manage their foreign currency risk, a question of the purpose of that management showed that the majority of 92.8% uses the management techniques to exclusively avoid risk, 7.2% adopt the techniques to both avoid risk and to speculate, while none of the firms

uses the techniques for speculation only. These results are illustrated in table (5-13).

Table (5.13) Purpose of managing currency risk

Purpose	Frequency	Valid Percent
Avoid risk	26	92.8
Avoid risk & speculation	2	7.2
Total	28	100.0

The effect of exchange rate variation of foreign currencies on firms' long term activities was measured by questioning the effect of the variation on the firm's sales (revenues), costs and profit.

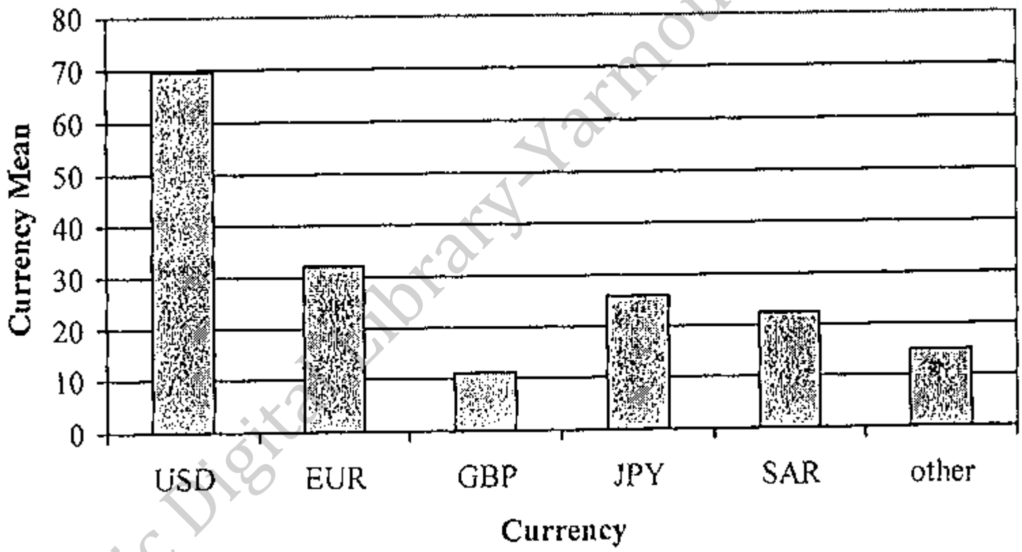
The highest effect of the exchange rate variation was on sales and revenues as the mean was the highest compared to other activities 3.35 of 5, the second effect of the exchange rate variations was on profit, while the lowest effect was on cost with means 2.81 and 2.67; respectively. These results are illustrated in table (5-14).

Table (5.14) the effect of exchange rate variations on the firms' activities

Activity	Mean	Sd	n
Sales and revenues	3.35	1.28	64
Profit	2.81	1.39	64
Cost	2.67	1.39	64

Major foreign currencies used by the firms are shown in Chart (5-1). The U.S dollar had the highest rank with 69.1% of use, the following was the Euro (€) with 32.2%, Japanese Yen (¥) and the Saudi Reyal (SAR) had a share of 26% and 22.5% respectively, Great Britain Pound (£) had an 11% use, finally other foreign currencies had a 15% in total.

Chart (5-1) % of foreign currencies used by the firms



5.6 Hypotheses Testing

This section is devoted to test the previously mentioned hypotheses of the study. The hypotheses were mainly based on finding significant relationships between presumed factors (firm specific characteristics) and the management techniques of foreign currency risk.

The same factors (firm specific characteristics) will be related to management techniques by two dimensions, transaction exposure management and economic exposure management.

Since there are more than two independent variables (firm specific characteristics) and the dependent variables (management techniques for each dimension) are measured on an interval scale. ANOVA[12] is appropriate to test these hypotheses. The hypotheses and the tests of the study will be presented next.

5.6.1 The Results of Transaction Exposure Dimension:

Transaction exposure is related to the risk that arises from a day to day transactions dealt with foreign currencies that are subject to volatility in value against the local currency.

In order to reach results concerning whether there is a relationship between the company specific characteristics and foreign currency risk management techniques adopted by Jordanian firms, first different techniques were listed, then to show how often they were used, answers were coded in a way that if a technique was always used by the firm the code was (5), if usually (4), sometimes (3), seldom (2) and finally if the

[12] ANOVA: analysis of variance

answer was that the technique was "never used" the code would be (1). Hypotheses depending on each character are presented next.

1. Firm Size Effect on Managing Transaction Exposure Risk.

Firm size was expressed by two variables, Capital and sales volume of the firm. The hypothesis is:

H01: *There is a significant statistical relationship between firm size and management practices with transaction exposure in the Jordanian environment.*

The one way ANOVA results for each variable are presented next.

a) The effect of capital size of the firm on managing on transaction exposure risk

With a significant level of 0.074 as table (5.15) shows, there is no significant statistical relationship between capital size of the firm and its techniques used to manage transaction exposure. Considering (0.05) significance level or below as the acceptable level for social science studies [Sekaran, 2003].

Table (5.15) the effect of capital size on managing transaction exposure risk

Capital size	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
<1 m	13	2.5618	1.25761	.34880	1.8018	3.3217	1.00	4.33
1-<5 m	9	3.3888	.64716	.21572	2.8914	3.8863	2.27	4.40
5-<10 m	11	3.4977	.71636	.21599	3.0165	3.9790	2.40	5.00
10m or more	3	3.6869	1.17689	.67948	.7633	6.6104	2.73	5.00
Total	36	3.1483	1.03424	.17237	2.7983	3.4982	1.00	5.00

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	7.206	3	2.402	2.543	.074
Within Groups	30.231	32	.945		
Total	37.438	35			

b) The effect of sales volume of the firm on managing transaction exposure risk

The result of the sales volume character and its relation to the use of transaction exposure management techniques also [as shown in table (5.16)] indicates an insignificant statistical relation. The significance level for this test is (= 0.218 > 0.05), which is not acceptable.

Table (5.16) the effect of sales volume on managing transaction exposure risk

Sales volume	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
<3 m	8	2.3523	1.62872	.57584	.9906	3.7139	1.00	5.00
3-6m	15	3.1988	.70348	.18164	2.8092	3.5884	2.00	4.40
6-9m	6	3.6015	.43486	.17753	3.1452	4.0579	3.00	4.00
9-12m	4	3.5476	.55737	.27868	2.6607	4.4345	2.86	4.00
13-15m	2	3.3667	1.36707	.96667	-8.9160	15.6493	2.40	4.33
15 m or more	4	3.4318	1.06374	.53187	1.7392	5.1245	2.73	5.00
Total	39	3.1554	1.02638	.16435	2.8227	3.4881	1.00	5.00

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	7.393	5	1.479	1.495	.218
Within Groups	32.639	33	.989		
Total	40.031	38			

Both results assert the ***rejection*** of the hypothesis of the significant statistical relationship between firm size and the management of transaction exposure.

2. Firm's Sector Effect on Managing Transaction Exposure Risk.

H02: *There is a significant statistical relationship between firms sector and management practices with transaction exposure in the Jordanian environment.*

Table (5.17) shows that there is a significant statistical relationship between sector of the firm and the techniques used. The significant level of (0.028) is lower than (0.05). This implies that the hypothesis (H02) is

substantiated. The results show that the highest attitude of adopting the managerial techniques was in the manufacturing as the mean is 3.44 followed by wholesale and retail trade with mean 2.79. Although other sectors have a mean of 5.0, this result was neglected because only one respondent participated in that result.

Table (5.17) the effect of firm's sector on transaction exposure risk

firm's sector	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Manufacturing	18	3.4440	.74343	.17523	3.0743	3.8137	2.00	5.00
Commercial	19	2.7931	1.13568	.26054	2.2457	3.3405	1.00	4.40
Others	1	5.0000	.	.	.	.	5.00	5.00
Total	38	3.1595	1.03984	.16868	2.8177	3.5013	1.00	5.00

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	7.395	2	3.697	3.968	.028
Within Groups	32.612	35	.932		
Total	40.007	37			

3. International Involvement Effect on Managing Transaction Exposure.

This section the tests the following hypothesis:

H03: *There is a significant statistical relationship between international business activity level and management practices with transaction exposure in the Jordanian environment.*

As mentioned earlier this factor is measured using three variables. The results for each variable are presented next.

a) Percentage of foreign sales to total sales effect on transaction exposure risk management

With significance value of (0.009). A significant statistical relationship at significance (α=.05) is clearly shown in table (5.18)

Table (5.18) Percentage of foreign sales to total sales effect on transaction exposure currency risk management

% of FS/TS	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
0%	5	2.8667	.81989	.36667	1.8486	3.8847	2.50	4.33
10%	5	1.4909	1.09771	.49091	.1279	2.8539	1.00	3.45
20%	4	3.8333	.33333	.16667	3.3029	4.3637	3.33	4.00
30%	5	3.3891	.97061	.43407	2.1839	4.5943	2.40	5.00
40%	7	3.4208	.87233	.32971	2.6140	4.2275	2.00	4.40
50%	5	3.8273	.82597	.36939	2.8017	4.8529	2.73	5.00
60%	2	3.2667	.09428	.06667	2.4196	4.1137	3.20	3.33
70%	2	3.4167	.11785	.08333	2.3578	4.4755	3.33	3.50
80%	2	3.4545	.89995	.63636	-4.6312	11.5403	2.82	4.09
100%	2	2.8182	.77139	.54545	-4.1125	9.7488	2.27	3.36
Total	39	3.1554	1.02638	.16435	2.8227	3.4881	1.00	5.00

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	19.699	9	2.189	3.122	.009
Within Groups	20.333	29	.701		
Total	40.031	38			

b) Percentage of foreign costs to total costs effect on foreign on transaction exposure risk management

Table (5.19) represents the test of the relationship between foreign costs percentage with the use of transaction exposure management techniques. The results show a significant statistical relationship with a significance level of (0.0001).

Table (5.19) Percentage of foreign costs to total costs effect on transaction exposure risk management

% of FC/TC	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
0%	1	1.0909	.	.	.	.	1.09	1.09
10%	4	1.0000	.00000	.00000	1.0000	1.0000	1.00	1.00
30%	2	3.9091	1.54278	1.09091	-9.9522	17.7704	2.82	5.00
40%	1	2.0000	.	.	.	.	2.00	2.00
50%	2	3.1000	.14142	.10000	1.8294	4.3706	3.00	3.20
60%	3	3.2121	.61881	.35727	1.6749	4.7493	2.73	3.91
70%	8	3.6940	.42059	.14870	3.3423	4.0456	3.33	4.33
80%	12	3.4128	.86226	.24891	2.8650	3.9607	2.50	5.00
90%	5	3.3073	.61100	.27325	2.5486	4.0659	2.40	4.09
100%	1	2.2727	.	.	.	.	2.27	2.27
Total	39	3.1554	1.02638	.16435	2.8227	3.4881	1.00	5.00

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	25.955	9	2.884	5.942	.000
Within Groups	14.076	29	.485		
Total	40.031	38			

c) Percentage of foreign debt to total debt effect on foreign on transaction exposure risk management

The significance level of (0.14) larger than (0.05) show no significant statistical relationship with this variable. Table (5.20) demonstrates that result.

Table (5.20) Percentage of foreign debt to total debt effect on transaction exposure risk management

% of FD/TD	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
0%	12	2.5455	1.32130	.38143	1.7060	3.3851	1.00	4.40
10%	1	4.3333	.	.	.	.	4.33	4.33
20%	6	3.3681	.37120	.15154	2.9785	3.7576	3.00	4.00
30%	3	3.3394	.60311	.34821	1.8412	4.8376	2.82	4.00
40%	8	3.7397	.74113	.26203	3.1201	4.3593	2.73	5.00
50%	4	2.5000	.00000	.00000	2.5000	2.5000	2.50	2.50
60%	1	3.3636	.	.	.	.	3.36	3.36
70%	2	4.0909	1.28565	.90909	-7.4602	15.6420	3.18	5.00
80%	2	3.2455	1.19565	.84545	-7.4971	13.9880	2.40	4.09
Total	39	3.1554	1.02638	.16435	2.8227	3.4881	1.00	5.00

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	12.483	8	1.560	1.699	.140
Within Groups	27.548	30	.918		
Total	40.031	38			

In order to conclude a result of whether to accept or reject the hypothesis of the relation between the international business activities of the firm and its management of transaction exposure; a consideration of the previously three variables must be done. The degree of the

international involvement by a firm was measured by the % FS, %FC and the %FD[13].

Both % FS and %FC showed a significant statistical relationship with the use of the management techniques, the %FD showed no relation unlike the previous variables. However the frequencies in table (5.10) of that specific variable showed that 42.4% of firms had no debt in foreign currency at all. Also 83.4% of firms had a %FD of 50% or less and that weakens the reliability of this variable. Therefore the variables %FS and % FC are more reliable to determine the result of the test to that hypothesis.

Finally considering the results of %FS and %FC and their significance level **H03** is substantiated.

Reviewing the means for both %FS and %FC result tables, a higher attitude is shown moving with higher percentages of foreign sales and costs.

[13] %FS: percentage of foreign sales, %FC: percentage of foreign costs, %FD: percentage of foreign debt

4. Legal Structure Effect on Foreign on Transaction Exposure Risk Management

The hypothesis is as follows:

H04: *There is a significant statistical relationship between legal structure and management practices with transaction exposure risk in the Jordanian environment.*

The results show that there is no significant statistical relationship between the legal structure of the firm and its management of transaction exposure. Therefore, **H04** is *rejected.* As shown in table (5.21), the test resulted in a significant level of (0.443).

Table (5.21) Legal structure effect on transaction exposure risk management

Legal structure	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Public shareholding	12	3.4868	.77937	.22499	2.9916	3.9820	2.00	5.00
Private shareholding	3	2.7697	.39263	.22669	1.7943	3.7450	2.40	3.18
Partnership	3	3.6263	.40693	.23494	2.6154	4.6371	3.33	4.09
Limited liability	15	2.9539	1.38090	.35655	2.1892	3.7186	1.00	5.00
Private company	5	2.7000	.44721	.20000	2.1447	3.2553	2.50	3.50
Total	38	3.1273	1.02487	.16626	2.7905	3.4642	1.00	5.00

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	4.046	4	1.011	.959	.443
Within Groups	34.818	33	1.055		
Total	38.863	37			

5.6.2 The Results of Economic exposure Dimension:

Economic exposure is basically related to the risk that is generated from dealing with foreign currencies in the long run.

This section tests the hypotheses concerning the relationship between firm's specific characteristics and the use of risk management techniques concerning Economic exposure.

Like transaction exposure, economic exposure management techniques were coded depending on how often these techniques were used by firms. That if a technique was always used by the respondent the code was (5), if usually (4), sometimes (3), seldom (2) and finally if the answer was that the technique was "never used" the code would be (1). Also ANOVA was used to test the hypotheses.

Results depending on each character are presented next.

1. *Firm Size*

The hypothesis was:

H05: *There is a significant statistical relationship between firm size and management practices with economic exposure in the Jordanian environment.*

Variables used to measure this character were sales volume and capital size. The one way ANOVA results for each variable are presented next.

a) The effect of capital size of the firm on managing economic exposure risk

Table (5.22) shows a significant statistical relationship between capital size of the firm and its techniques used to manage economic exposure, with a significance level of 0.0001.

Table (5.22) the effect of capital size on managing economic exposure risk

capital size	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
<1 m	20	4.4826	.59637	.13335	4.2035	4.7617	3.00	5.00
1-<5 m	16	3.5336	.76772	.19193	3.1245	3.9427	1.33	4.57
5-<10 m	14	3.4653	.53724	.14358	3.1551	3.7755	3.00	4.71
10m or more	5	3.0333	.46248	.20683	2.4591	3.6076	2.50	3.67
Total	55	3.8158	.80685	.10880	3.5977	4.0340	1.33	5.00

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	14.948	3	4.983	12.576	.000
Within Groups	20.206	51	.396		
Total	35.154	54			

b) The effect of sales volume of the firm on managing economic exposure risk

Result of the test shows a significant statistical relationship concerning this variable. The significance level is 0.001 for this test, and this is clearly demonstrated in table (5.23).

Table (5.23) the effect of sales volume on managing economic exposure risk

sales volume	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
<3 m	16	4.3905	.88562	.22141	3.9186	4.8624	1.33	4.86
3-<6m	17	3.4529	.57337	.13906	3.1581	3.7477	2.00	4.17
6-<9m	9	3.1296	.41481	.13827	2.8108	3.4485	2.50	4.00
9-<12m	4	3.3917	.23154	.11577	3.0232	3.7601	3.20	3.67
13-<15m	2	3.4286	.60609	.42857	-2.0169	8.8741	3.00	3.86
15 m or more	4	3.2500	.44096	.22048	2.5483	3.9517	2.83	3.83
Total	52	3.6642	.79678	.11049	3.4424	3.8860	1.33	4.86

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	12.865	5	2.573	6.065	.000
Within Groups	19.513	46	.424		
Total	32.378	51			

Both capital and sales tests show significant statistical relationships with the degree of using the management techniques to face economic exposure. Thus, **H06** is substantiated concerning the relationship between firm size and its management of economic exposure.

Reviewing the means for capital and sales tables, a higher attitude of adopting the managerial techniques is shown moving with lower percentages of foreign sales and costs.

2. *The effect of sector of the firm on managing economic exposure risk*

H_{06}: *There is a significant statistical relationship between industry groupings and management practices with economic exposure in the Jordanian environment.*

Table (5.24) shows that there is a significant statistical relationship between sector of the firm and its management of economic exposure. The significant level of 0.001 asserts that relation. **H_{06} is substantiated.**

The results show that the highest attitude of adopting the managerial techniques was for wholesale and retail trade as the mean is 4.13 followed by manufacturing with mean 3.37.

Table (5.24) the effect of firm's sector on economic exposure risk

Firm's sector	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Manufacturing	26	3.3736	.76520	.15007	3.0646	3.6827	1.33	4.83
Wholesale and Retail Trade	29	4.1319	.76916	.14283	3.8393	4.4244	2.50	5.00
Others	2	3.0833	.35355	.25000	-.0932	6.2599	2.83	3.33
Total	57	3.7492	.84651	.11212	3.5246	3.9738	1.33	5.00

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	8.801	2	4.400	7.585	.001
Within Groups	31.328	54	.580		
Total	40.129	56			

3. *International Involvement Effect on Managing Economic Exposure.*

In this section, we test the following hypothesis:

H07: *There is a significant statistical relationship between international business activity level and management practices with economic exposure in the Jordanian environment.*

As mentioned earlier, this character is measured using three variables. The results for each variable are presented next.

a) Percentage of foreign sales to total sales effect on economic exposure risk management

With significance value equaling (0.015); the percentage of foreign sales to total sales has a significant statistical relationship with the use of management techniques. This is clearly shown in table (5.25).

Table (5.25) Percentage of foreign sales to total sales effect on economic exposure currency risk management

% of FS/TS	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
10%	2	3.0000	.00000	.00000	3.0000	3.0000	3.00	3.00
20%	3	3.0000	.60093	.34694	1.5072	4.4928	2.50	3.67
30%	3	3.0556	1.49381	.86245	-.6553	6.7664	1.33	4.00
40%	9	3.4630	.51301	.17100	3.0686	3.8573	2.83	4.33
50%	8	3.4000	.89389	.31604	2.6527	4.1473	2.00	4.83
60%	2	3.2500	.35355	.25000	.0734	6.4266	3.00	3.50
70%	6	3.5167	.49610	.20253	2.9960	4.0373	3.00	4.33
80%	7	4.1327	.91884	.34729	3.2829	4.9824	3.00	4.86
100%	6	3.7857	.58902	.24046	3.1676	4.4038	3.00	4.71
Total	54	3.6612	.79521	.10821	3.4441	3.8783	1.33	4.86

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	11.808	9	1.312	2.659	.015
Within Groups	21.708	44	.493		
Total	33.515	53			

b) Percentage of foreign costs to total costs effect on economic exposure risk management

Also the results show a significant statistical relationship of this variable in that dimension, the value of the significant level in which this relation holds in is (0.001).Table (5.26) represents the result of that test.

Table (5.26) Percentage of foreign costs to total costs effect on economic exposure risk management

% of FC/TC	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
0%	1	1.3333	.	.	.	.	1.33	1.33
10%	2	3.0833	1.53206	1.08333	-10.6817	16.8484	2.00	4.17
30%	5	3.7095	.81726	.36549	2.6948	4.7243	2.83	4.71
40%	10	3.9000	.87206	.27577	3.2762	4.5238	2.50	4.67
50%	6	3.7119	.78975	.32241	2.8831	4.5407	2.50	4.57
60%	3	3.3889	.50918	.29397	2.1240	4.6537	2.83	3.83
70%	13	3.4916	.41186	.11423	3.2427	3.7405	3.00	4.33
80%	9	3.3963	.34859	.11620	3.1283	3.6642	3.00	4.00
90%	4	4.8571	.00000	.00000	4.8571	4.8571	4.86	4.86
100%	1	4.8333	.	.	.	.	4.83	4.83
Total	54	3.6612	.79521	.10821	3.4441	3.8783	1.33	4.86

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	15.007	9	1.667	3.964	.001
Within Groups	18.508	44	.421		
Total	33.515	53			

c) Percentage of foreign debt to total debt effect on economic exposure risk management

Finally the test of the relation between the percentage of foreign debt to total debt and the managerial actions towards economic exposure revealed a significant statistical relationship. The significance figure is (0.008), which is demonstrated in table (5.27).

Table (5.27) Percentage of foreign debt to total debt effect on economic exposure risk management

% of FD/TD	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
0%	4	3.0000	.00000	.00000	3.0000	3.0000	3.00	3.00
10%	2	3.0000	.00000	.00000	3.0000	3.0000	3.00	3.00
20%	3	3.5079	.45008	.25985	2.3899	4.6260	3.00	3.86
30%	8	3.5000	.59040	.20874	3.0064	3.9936	2.83	4.83
60%	2	3.0833	.35355	.25000	-.0932	6.2599	2.83	3.33
70%	9	3.3444	.47697	.15899	2.9778	3.7111	2.50	4.00
80%	2	4.2738	.62293	.44048	-1.3230	9.8706	3.83	4.71
90%	5	4.6667	.00000	.00000	4.6667	4.6667	4.67	4.67
Total	58	3.7535	.83970	.11026	3.5327	3.9743	1.33	5.00

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	13.170	8	1.646	2.985	.008
Within Groups	27.020	49	.551		
Total	40.190	57			

The results of the previous three tests assert the acceptance of the relation between the degree of international involvement of the firm and its management of the economic exposure. Therefore **H07** is substantiated. Also an indication of a higher attitude of using the managerial techniques moving to higher levels of foreign sales, costs and debts is shown by reviewing the means.

4. Legal Structure Effect on Foreign on Economic Exposure Risk Management

The hypothesis is as follows:

H08: *There is a significant statistical relationship between legal structure and management practices with economic exposure risk in the Jordanian environment.*

The test performed to test whether there is a relationship between legal structure of the firm (as a character) and the management techniques to face economic exposure risk. The results show a significant statistical relationship under a significance level of 0.001. Therefore **H08** is also accepted. As results appear in table (5.28),

The results show that the highest attitude of adopting the managerial techniques was for partnerships as the mean is 4.54 followed by limited liabilities firms with mean 3.97, private and public shareholdings firms had a means of 3.60 and 3.19 respectively.

Table (5.28) Legal structure effect on economic exposure risk management

Legal structure	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Public shareholding	16	3.1979	.53451	.13363	2.9131	3.4827	2.00	4.17
Private shareholding	6	3.6000	.58310	.23805	2.9881	4.2119	2.83	4.33
Partnership	7	4.5476	.71824	.27147	3.8834	5.2119	3.50	5.00
Limited liability	27	3.9730	.84504	.16263	3.6387	4.3073	1.33	4.86
Private company	1	2.5000	.	.	.	.	2.50	2.50
Total	57	3.7609	.84527	.11196	3.5366	3.9852	1.33	5.00

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	12.364	4	3.091	5.814	.001
Within Groups	27.647	52	.532		
Total	40.011	56			

A summary of the hypotheses' testing is shown in Table (5-29).

Table (5.29) Hypothesis testing summary

(Rule: if Sig. < 0.05, then accept H_0)	***Sig.***	***Accept /Reject***
H01: There is a significant statistical relationship between firm size and management practices toward transaction exposure in the Jordanian environment.	Capital= **.074** Sales = **.218**	***Reject***
H02: There is a significant statistical relationship between industry groupings and management practices toward transaction exposure in the Jordanian environment	**= 0.028**	***Accept***
H03: There is a significant statistical relationship between international business activity level and management practices toward transaction exposure in the Jordanian environment.	%FS\TS= .009 %FC\TC= .000 %FD\TD= .140	***Accept***
H04: There is a significant statistical relationship between legal structure and management practices toward transaction exposure risk in the Jordanian environment	**= 0.443**	***Reject***
H05: There is a significant statistical relationship between firm size and management practices toward	Capital= **.000**	***Accept***

economic exposure in the Jordanian environment.	Sales = .000	
H06: There is a significant statistical relationship between industry groupings and management practices toward economic exposure in the Jordanian environment.	**= 0.001**	***Accept***
H07: There is a significant statistical relationship between international business activity level and management practices toward economic exposure in the Jordanian environment.	%FS\TS= .015 %FC\TC= .001 %FD\TD= .008	***Accept***
H08: There is a significant statistical relationship between legal structure and management practices toward economic exposure risk in the Jordanian environment.	**=.001**	***Accept***

5.7 Level of using Different Managerial Techniques by Jordanian Firms

Other results came to describe the level of using each foreign currency risk management technique in each dimension, i.e. transaction and economic exposures. Table (5-30) and table (5-31) show the means and standard deviations for each technique

Table (5-30) Level of using the following hedging instrument to manage foreign exchange risk (Transaction exposure)

Hedging instrument	Mean	n	Standard deviation
Forward Contracts	3.32	34	1.28
Future Contracts	3.25	25	1.10
Option Contracts	3.17	18	1.35
Swap Contracts	3.00	17	0.98
Short-term borrowing	3.57	23	1.04
Short-term deposits	3.40	23	1.40
Pricing policy	4.61	31	0.77
Using domestic currency	4.50	25	1.00
Netting	3.50	23	1.10
Leading & Lagging	3.61	17	1.08
Matching	4.11	24	1.05
Other Methods	4.35	4	1.22

Techniques to deal with transaction exposure can be classified in terms of sophistication level into three groups. The most sophisticated

level in terms of cost and risk is the derivatives which are forward, future, options and swap contracts. The results show a low use of these techniques by the firms through the low means shown in the table above. Forward contracts had the highest mean relative to this group with 3.32.

The second group which has a relatively moderate risk and cost hedging level is short-term borrowing and deposit. A higher attitude of using these techniques is indicated through the higher means in the table with 3.40 for the short term deposits and 3.57 for short term borrowing.

Finally, the last group of techniques is considered to be the least sophisticated in which the management is hedging the cost and risk internally, without involving a second party. The highest technique used is the pricing policy with a mean of 4.61, then the domestic currency with 4.50. The least technique used in that group is netting with a mean of 3.50.

Generally, the results show that the higher the sophistication level of the technique in term of risk and cost the lower the use of it. Table (5-31) demonstrates the level of using techniques to deal with economic exposure. The highest technique with a mean of 4.71 is altering the currency in which the production cost occurs, following movements in foreign exchange rates. Foreign currency denominated debt and diversifying sales in many different currencies with means of 3.75 and 3.72 respectively. Altering the currency from which inputs are sourced, following movement in foreign exchange rates had a mean of 3.45.

Finally the use of long-term derivatives and the technique of Sourcing inputs in the same currencies as sales are made had the lowest means of 3.32 and 3.27 respectively.

Table (5-31) Level of using the following hedging instrument to manage foreign exchange risk (Economic exposure)

Hedging technique	Mean	Std. Deviation
Sourcing inputs in the same currencies as sales are made.	3.27	1.25712
Altering the currency from which inputs are sourced, following movement in foreign exchange rates.	3.45	1.24025
Altering the currency in which production occur, following movements in foreign exchange rates.	4.71	.75020
Foreign currency denominated debt.	3.75	1.21873
Diversifying sales in many different currencies.	3.72	1.11496
Long-term derivatives	3.32	1.09515

5.8 Reasons behind not using the Managerial Techniques by Jordanian Firms

Moreover the firms were asked about the reasons behind not using the different techniques mentioned in the questionnaire.

The results for the transaction dimension are presented in table (5-32). It is clear that the majority of the respondents (33.4%) consider the complexity and the lack of experienced to be one of the problems that stand against adopting some of the techniques. 35.6% of respondents stated other reasons for not using the techniques, the majority of the answers was that their transactions have a certain stability due to the pegged Jordanian dinar to the U.S dollar. Other added that as they gain

from the volatility of currency they accept a certain level of lost otherwise the firm limits that lost through reflecting the differences to the prices. 11.1% of the respondents does not use the techniques, because simply they don't have the authority to do so, while 13.3% believes that those instruments does not exist or not available, in this section the meant instruments are the *derivatives* because the other instruments are natural and do not need a second party in order to use them. Finally 6.6% of respondents do not believe in the rationality behind managing transaction exposure.

Table (5-32) the reasons behind not using one or more of the managing techniques (Transaction exposure).

Reason	Frequency	Valid Percent
Too complex and there is no trained staff to deal with this kind of risk	15	33.4
Not allowed	5	11.1
Instruments are not available	6	13.3
Not logical to manage Foreign Exchange Risk	3	6.6
Other reasons	16	35.6
Total	45	100.0

The same questions were asked but they were concerned with reasons behind not using the different techniques to manage the economic exposure. The results are as shown in table (5-33).

Table (5-33) the reasons behind not using one or more of the managing technique (Economic exposure).

Reason	Frequency	Valid Percent
Instruments are not available	8	14.5
Too complex and there is no trained staff to deal with this risk	4	7.3
Not allowed	7	12.7
Not logical to manage Foreign Exchange Risk	3	5.5
The pegged JD to the US dollar gave the firm a stable position	33	60.0
Total	55	100.0

The majority of responses, 60%, considered the pegging of Jordanian dinar to the US dollar is the reason to give the firm a stable position towards the movement of the currencies. Therefore they do not need to act to this exposure.

Also, the result shows that 14.5% of respondents believe that the instruments are not available in the Jordanian environment. 7.3% believes that using these techniques is too complex and the lack the experienced staff to use them. On the other hand, 12.7% of respondents do not use the techniques because they do not have the authority to do so. Finally, 5.5% do not believe in the relevance of managing foreign currency risk as a reason of not using the techniques.

CHAPTER SIX

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

6.1 Summary and Conclusions

6.2 Recommendations

6.3 Suggestions for Further Research

CHAPTER SIX

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

6.1 Summary and Conclusions

Motivated by the fact that foreign currency risk becomes more and more important in the light of world markets globalization and internationalization, this study is conducted in order to have an idea on the management of foreign currency risk by Jordanian firms. Also it examines the impact of firm specific characteristics and its relation to the managerial techniques used to face that risk with respect of two dimensions: transaction and economic exposures. Firm's specific factors include size, sector, legal structure and international involvement.

To achieve this goal, the literature is reviewed, and a theoretical presentation of the subject is provided. Also, a proper questionnaire was designed and administered to an unequal-size stratified sample that consist of 120 non-financial Jordanian firms listed as major tax-payers in Jordan, which resulted in a response rate of 61.6%.

The results of the questionnaire give an idea concerning Jordan's economic environment in terms of comprehending, exposure and management of foreign currency risk.

Evidence from the analysis shows that 66% of the firms do manage their foreign currency risk. However the majority of the firms rely on natural hedging techniques, and the use of more sophisticated techniques such as the financial derivatives, is not a common practice by Jordanian firms.

The lack of knowledge by managers and other staff members in the management is one of the major obstacles for using the techniques. Some firms do not believe in the relevance of their exposure to foreign currency risk. Others believe that financial derivatives are not available in the Jordanian market. However financial derivatives do exist in some major Jordanian banks.

The great majority of firms considered the pegged Jordanian dinar to the U.S dollar as one of the reasons that gave their foreign transactions certain stability since both currencies moves at the same direction with approximately same proportion. However, dealing with other currencies that are subject to volatility in its exchange rate is substantial, especially the Euro.

Concerning the firm's specific characteristics and their hypothesized relations to the management of transaction exposure dimension. This study shows that there is no relation between the firm size and the management practices toward transaction exposure. The same result was shown for the firms legal structure.

A relationship between the firms different sectors and the hedging techniques used is found significant, and the highest attitude is in the manufacturing sector. The study also found that firm's international involvement and management practices are positively correlated.

On the other hand, the results concerning the firm's specific characteristics and its relations to the managerial techniques used towards economic exposure came as follows.

Firm size is found to be negatively correlated to the management practices. This result could be attributed to the fact that larger firms have less flexibility to act toward economic exposure. As mentioned in chapter three, operational hedging techniques are expensive and risky because it involves a large amount of resources. Shifting the industry from a currency to another is one example of techniques that need major resources to be adopted. Also larger firms may be engaged in long-term contracts that take into consideration the foreign currency volatility risk.

The evidence also found a correlation between firms sector and the management practices, commercial firms had the highest attitude toward managing economic exposure. Moreover, a relation between legal structure of the firms and its management to economic exposure is found significant. Partnerships seemed to have the highest adoption of the managerial techniques than other types of entities. This could be contributed to the fact that owners of the firm have higher motive and

authority to make decision involving their business, than managers in other legal structures.

Firm's degree of international involvement and the management practices are positively correlated.

6.2 Recommendations

Based on the results of the study some recommendations stated as follows:

1) The lack of knowledge and experience of evaluating the degree of foreign currency exposure and dealing with the hedging instruments was reported in the study. Therefore proper training programs should be conducted for financial managers in order to enhance their knowledge about the importance of foreign currency risk and the different techniques used to manage that risk.

2) The fact that risk management is a new discipline in the developing countries. Business and financial courses in the Jordanian universities need to be re-evaluated in order to include the new issues of the international finance.

3) Many of the Jordanian firms attributed the absence of the hedging techniques in their firms to the exchange rate policy of the CBJ

(Central Bank of Jordan). This policy a stable position toward the JD/$US exchange rate changes. However Jordanian firms must be conscious to the fact that JD can be floated against the US dollar in the future. Especially as a consequence of the participation of Jordan with the WTO agreement. In this case, the magnitude of the foreign currency exposure will be very high and needs effective foreign currency risk management practices.

4) Banks and other financial firms should play a vital role in the development of the risk management issues. Financial derivatives should be offered and promoted more. Also consulting services should be provided to manage such risk.

5) Specialized financial firms that offer a wide range of financial instruments to hedge foreign currency risk, also that provide well experienced staff specialized in Jordan's economic environment should be established. And the experience from such specialized firms in the developed countries must be benefited from.

6.3 Suggestions for Further Research

This study was based on examining the foreign currency risk management techniques used by Jordanian firms, and its relationship with

company specific characteristics. Other factors such as education of decision makers, competition, regulatory environment and religion are suggested to be examined in further research.

Conducting a research using a case study approach may cover more comprehensive understanding of this kind of risk management, and also provide deeper insight on the degree of risk exposure and obstacles faced by the firm.

Also useful information could be gathered from a comparative examination of the foreign currency risk management in other developing countries.

LIST OF REFERRENCES

1. BOOKS

1) Beenhakker, Henri L. (2001). ***The Global Economy and International Financing***. Westport CT, USA : Quorum/Greenwood.

2) Bishop, P & Dixon, D (1992). ***Foreign exchange handbook: managing risk and opportunity in global currency markets***. New York: McGraw-Hill.

3) Bradley, Iver E. & South, John B. (1981). ***Introductory Statistics for Business and Economics***. Tokyo, Japan: Holt-Saunders.

4) Crouhy M, Galai D. & Mark R. (2006). ***The Essentials of Risk Mangement***. New York, USA: McGraw-Hill.

5) Eitman, D., Stonehill, A. (1997), ***Multinational Business Finance***, Addison Wesley Publishing Company Inc., MA,

6) Jilling, Michael. (1978). ***Foreign exchange risk management in U.S. multinational corporations / Research for business decisions***. Ann Arbor. USA: UMI Research Press.

7) Madura, J. (2003). ***International Financial Management***. Ohio, USA: John Thompson south western.

8) Oxelheim, L.& Wihlberg,C. (1987), ***Managing In The Turbulent World of Economy***, New York, USA: John Wiley & Sons

9) Prindl, A.R., (1976). ***Foreign Exchange Risk***. New York, USA: John Wiley & Sons

10) Radja, G. (1997). ***Principles of Risk Management and Insurance***. Sixth edition. Addison-Wesley. Pearson PLC

11) Sekaran, Umma (2003). ***Research Methods for Business: A Skill Building Approach***. New York, USA: John Wiley & Sons.

12) Shapiro, A. C., 1996. ***Multinational Financial Management***, 5th ed., Upper Saddle River, N.J, USA: Prentice Hall.

13) Smithson, Charles W. (1998). ***Managing Financial Risk a guide to derivative products, financial engineering and value maximization 3rd Edition***. New York, USA: McGraw-Hill.

2. JOURNAL ARTICLES:

1) Ankrom, K. (1974).***Top Level Approach to the Foreign Exchange Problem***. Harvard Business Review.

2) Batten J., Mellor R., & Wan V. (1993). ***Foreign exchange risk management practices and products used by Australian firms***. Journal of International Business Studies, 25, pp557-573.

3) Belk P.A & Glaum M. (1990). ***The management of foreign exchange risk in UK multinationals: an empirical investigation***. Accounting and Business Research, 21(81), pp. 3-13.

4) Bradley K. & Moles P. (2001). ***The effects of exchange rate movements on non-financial UK firms***. International Business Review 10, pp. 51-69

5) Breeden, D., and S. Viswanathan, (1996). ***Why do firms hedge? An asymmetric information model.*** Working paper, Duke University

6) Dhanani, A. & Groves, R., (2001). ***The management of strategic exchange risk: evidence from corporate practices***. Accounting and Business Research, 31(4), pp. 275-290

7) El-Masry, A. (2003). ***The Exchange Rate Exposure of UK non-financial companies: industry level analysis.*** Journal of Managerial Finance, 32 (2), pp. 115 – 136.

8) Hekman, C. R. (1981). ***Foreign Exchange Risk: Relevance and Management.*** Managerial and Decision Economics, 2 (4), pp256-262

9) Jaques, L., (1981). ***Management of Foreign Exchange Risk***. Journal of International Business Studies, 12 (1), pp 81-101.

10) Mayers, D., & Smith, C. (1982). ***On the Corporate Demand for Insurance***. The Journal of Business, 55 (2), pp281-296

12) Modigliani, F. & Miller, M., (1958). ***The Cost of Capital, Corporation Finance and the Theory of Investment.*** The American Economic Review, 48 (3),pp261-297.

13) Oldfield, G. & Logue, D. (1977). ***Managing Foreign Assets When Foreign Exchange Markets Are Efficient.*** Financial Management, 6 (2), pp16-22.

14) Schmit, J. & Roth, k., (1990). ***Cost Effectiveness of Risk Management Practices***. The Journal of Risk and Insurance, 57 (3), pp. 455-470.

15) Shapiro, A.C., (1985). ***"Currency Risk and Country Risk in International Banking***" The Journal of Finance, 40(3), pp.881-891.

16) Smith C.W. and Stulz R.M. (1985). ***The Determinants of Firms' Hedging Policies***. Journal of Financial and Quantitative Analysis, 20(40), pp391-405.

17) **Tufano**, P., (1996). ***Who manages risk? An empirical examination of risk management.practices in the gold mining industry.*** Journal of Finance, 51 (4),pp1097-1137.

3. ELECTRONIC SOURCES:

1) Allayannis, G., Brown, G. & Klapper, L. (2001). ***Exchange Rate Risk Management Evidence from East Asia***. The World Bank. Policy research working paper 2606. Online available: http://www-wds.worldbank.org/external/default/WDSContentServer/IW3P/IB/2001/06/15/000094946_01060604005427/Rendered/PDF/multi0page.pdf

2) Boyabatli, O. & Toktay, B. (2004). ***Operational Hedging: A review with discussion***. Technology Management. Working paper series. INSEAD. On line available:

http://faculty.insead.edu/toktay/Articles/pompaper.pdf

3) Brucaite V, Yan S (2000). ***Financial Risk Management -Case Studies with SKF and Elof Hansson***. Published Master Thesis, Göteborg University.on line available http://www.handels.gu.se/epc/archive/00001538/01/Brucaite_200014.pdf

4) Company statistics. Main economic sectors, ***Jordan Companies Control Department***, online available: www.ccd.gov.jo

5) Fang, W., & Miller, S. (2004). ***Exchange Rate Depreciation and Exports: The Case of Singapore***. University Of Connecticut Working Paper No: 2004-45. On line available: http://www.econ.uconn.edu/working/2004-45.pdf

6) Jonuska, M. & Samenaite, I. (2003). **Foreign Exchange Risk Management in Lithuanian Economy: The Use of Currency Derivatives**. Published master thesis. Stockholm School of Economics in Riga. On line available: http://www2.sseriga.edu.lv/library/working_papers/FT_2003_19.pdf

7) Karam, P. (2001). **Exchange Rate Policies in Arab Countries: Assessment and Recommendations.** Arab Monetary Fund publications. Online available: http://www.amf.org.ae/pages/page.aspx?type=8589934592&ID=23&Class=8&forceLanguage=en

8) Karasoy, Almira. (1995). ***Management of Exchange Rate Risk in Turkish banking sector: A Model and Tests***. Central Bank of The Republic of Turkey Discussion Paper No: 9602 on line available: http://www.tcmb.gov.tr/research/discus/9602eng.pdf

9) Mahmod, D, Rubil, G. & Sibhatu, T. (2005). ***Difference in foreign exchange risk management between family and non-family owned firms***. Published bachelor thesis. Jönköping International Business School. On line available: http://www.essays.se/essay/7eca4e9f91/

10) Ministry of Industry and Trade (MI&T) 2004, MB, Vol.2-No. (7).Amman. Online available: http://mit.gov.jo/tabid/36/default.aspx

12) Papaioannou, M. (2006). **Exchange Rate Risk Measurement and Management: Issues and Approaches for Firms**. International Monetary Fund Working Paper, WP/06/255. Online available: http://www.imf.org/external/pubs/ft/wp/2006/wp06255.pdf

13) Sedik, T. & Petri, M. (2006). ***To Smooth or Not to Smooth—The Impact of Grants and Remittances on the Equilibrium Real Exchange Rate in Jordan.*** International Monetary Fund working paper, WP/06/257. Online available: http://www.imf.org/external/pubs/ft/wp/2006/wp06257.pdf

14) Popov, V. & Stutzmann, Y. (2003). ***How is Foreign Exchange Risk Managed? An Empirical Study to two Swiss* Companies.** Published Master Thesis. University of Lausanne. Online available: http://www.hec.unil.ch/cms_mbf/master_thesis/0314.pdf

15) Member information .***World Trade Organization.*** On line available: http://www.wto.org/english/countries_e/jordan_e.htm

Appendices

Appendix (1): Questionnaire

بســم الله الرحمن الرحيم

جامعة اليرموك
Yarmouk University

جامعـــة اليرمـــوك

كلية الاقتصاد و العلوم الإدارية

قسم العلوم المالية و المصرفية

السيد المدير / المديرة

تحية طيبة وبعد.........

أضع بين أيديكم الإستبانة الخاصة برسالة الماجستير المعنونة "ممارسات إدارة مخاطر أسعار صرف العملات الأجنبية من قبل الشركات الأردنية" حيث تهدف هذه الإستبانة إلى دراسة مدى استخدام تقنيات إدارة مخاطر أسعار الصرف في المجتمع الاقتصادي الأردني . و من المؤمل أن تساهم هذه الدراسة في الحصول على نتائج تساهم و تساعد الشركات الصناعية و التجارية الأردنية في الوقوف على أهمية استخدام هذه التقنيات.

إن مشاركتكم في هذه الدراسة عامل مهم في إنجاحها, فإننا نرجو منكم التكرم بالإجابة على الأسئلة المرفقة في متن الإستبانة, و نود أن نحيطكم علماً بأن جميع الإجابات ستعامل بسرية تامة ولن تستخدم إلا لأغراض البحث العلمي فقط ، كما أن نتائج الدراسة ستعرض بشكل إجمالي و لن يشار فيها إلى اسم الشركة المجيبة.

وتفضلوا بقبول فائق الاحترام و التقدير....

الباحـث: محمد رضوان غرايبه

المشرف: أ.د ريـاض المومـني

<u>الجـزء الأول:</u>

معلومـات عامـه عن الشركة :-

1. اسم الشركــة ....

2. **ما هو تصنيف الشركة حسب القطاعات التالية:**

☐ القطاع الصناعي , ☐ القطاع التجاري , ☐ القطاع الزراعي

☐ قطاع المقاولات , ☐ قطاع المناجم و التعدين.

☐ غيرها.................. .

3. **ملكية الشــركة:**

☐ عامة (حكومية) , ☐ خاصة , ☐ مختلطة.

4. **ما هي الطبيعة القانونية للشركة ؟**

☐ مساهمة عامة , ☐ مساهمة خاصة , ☐ تضامن ,

☐ ذات مسؤولية محدودة , ☐ شركة خاصة.

5. **رأسمال الشركة.......................... .**

6. **القيمة السوقية للشـركة ....**

7. **معدل المبيعات (الإيرادات) السنـوية للشـركة................. .**

8. **ما هي نسبة المبيعات (الإيرادات) بالعملة الأجنبية إلى المبيعات (الإيرادات) الكلية؟**

☐ صفر,لا يوجد مبيعات بالعملة الأجنبية, ☐10%, ☐20%, ☐30%,

☐40%, ☐50%, ☐60%, ☐70%, ☐80%, ☐90%, ☐100%.

9. **ماهي نسبة التكاليف بالعملة الأجنبية إلى التكاليف الكلية؟**

☐ صفر,لا يوجد تكاليف بالعملة الأجنبية , ☐ 10%, ☐20%, ☐ 30 %

☐ 40 %, ☐50 %, ☐ 60 %, ☐ 70 %, ☐ 80 %, ☐ 90 %, ☐100%.

10. **ما هي نسبة الدين (الاقتراض) بالعملة الأجنبية إلى الدين (الاقتراض) الكلي؟**

☐ صفر,لا يوجد ديون بالعملة الأجنبية, ☐10%, ☐20%, ☐30%

☐ 40 %, ☐ 50 %, ☐ 60 %, ☐ 70 %, ☐ 80 %, ☐ 90 %, ☐100%.

11. **ما هي العملات الأجنبية التي يتم التعامل بها عادةً من قبل الشركة, يرجى ترتيب العملات من الأكثر تعاملاً إلى الأقل مع تحديد النسبة المئوية لكل عملة إلى مجموع العملات المتعامل بها.**

العملة	%

العملة	%

الجـزء الثانـي :

مخـاطـر التـعـامـل (Transaction Risk)

1. **هل يوجد في تعاملات الشركة الاعتيادية مدفوعات أو مقبوضـات اجله بالعملة الأجنبـية تـتعرض لمخاطر تـقلبات أسعار الصرف ؟**

☐ نعم , ☐ لا

* إذا كانت الإجابة بـلا يرجى الانتقال إلى الجزء الثالث.

2. **هل تقوم الشركة بـإدارة هذا النوع من المخاطر ؟**

☐ نعم ☐ لا

* إذا كانت الإجابة بـلا يرجى الانتقال إلى السؤال الخامس.

3. **ما هو هـدف الشركة من إدارة مخاطر أسعار اصرف العملة الأجنبية ؟**

☐ الحماية من المخاطر.(To hedge the risk)

☐ المضاربة. (Speculation)

☐ الحماية من المخاطر و المضاربة.

4. مـا مـدى استخدام الأسـاليب التالية لإدارة مخاطر أسعار الصرف للعملات الأجنبية؟

*ملاحظة: يرجى الإستعانه بالتوضيح المرفق لهذه الأساليب في أخر الإستبانة.

الرقم	وسيلة الإدارة	دائماً	عادةً	أحياناً	نادراً	غير مستخدمه
1	العقود الآجلة Forward Contracts					
2	العقودالمستقبلية Future Contracts					
3	عقود الخيارات Option Contracts					
4	عقود المبادلة Swap Contracts					
5	القروض قصيرة الأجل					
6	الإيداعات قصيرة الأجل					
7	السياسة التسعيرية					
8	البيع و الشراء بالعملة المحلية					
9	Netting					
10	Leading & Lagging					
11	Matching					
12	وسائل أخرى:					

- إذا تمت الإجابة بعدم استخدام نوع أو أكثر من هذه الأساليب يرجى الإجابة على السؤال التالي بوضع رقم الأسلوب بجانب الأسباب المذكورة.

5. السبب أو الأسباب وراء عدم استخدام طرق الإدارة لمخاطر أسعار صرف العملات الأجنبية.

أ- لأنها معقدة جداً و لا يوجد كادر مدرب للتعامل مع هذه المخاطر

....

ب- لا يوجد صلاحيات لاستخدام هذه الوسائل ....

....

ت- خطورة التعامل بهذه الوسائل و لأنها مكلفة أيضاً

....

ث- هذه الوسائل غير متوفرة...................................... .

ج- إدارة مخاطر أسعار الصرف غير منطقية

....

ح- أسباب أخرى و هي

....

....

....

الجـــزء الثالـــث :

المخاطر الاقتصادية (طويلة الأجل) (Economic Risk)

1. يرجى الإشارة إلى مدى تأثر المتغيرات المذكورة بتقلبات أسعار الصرف للعملات الأجنبية على المدى البعيـد .

	تأثير كبير				تأثير منخفض
المبيعات أو الإيرادات	☐	☐	☐	☐	☐
التكـــالــــــــــيف	☐	☐	☐	☐	☐
الأربـــــــــــاح	☐	☐	☐	☐	☐

2. ما مدى استخدام الأساليب التالية لإدارة مخاطر أسعار الصرف للعملات الأجنبية؟

الرقم	وسيلة الإدارة	دائماً	عادةً	أحياناً	نادراً	غير مستخدمه
1	استيراد مدخلات الإنتاج بنفس العملة التي يتم بها البيع.					
2	تغيير البلد الذي يتم استيراد مدخلات الإنتاج منه أو التصدير اليه بسبب تقلب سعر صرف عملته.					
3	تغيير البلد الذي يتم الإنتاج على أرضه بسبب تقلب سعر صرف عملته.					
4	البيع بعملات مختلفة بهدف التخفيف من فروقات أسعار الصرف					
5	الاقتراض أو الإقراض بعملات أجنبية					
6	استخدام المشتقات المالية طويلة الأمد					
7	وسائل أخرى:					

* إذا تمت الإجابة بعدم استخدام نوع أو أكثر من هذه الأساليب يرجى الإجابة على السؤال التالي بوضع رقم الأسلوب بجانب الأسباب المذكورة.

3. السبب أو الأسباب وراء عدم استخدام طرق الإدارة لمخاطر أسعار صرف العملات الأجنبية.

أ- لأنها معقدة جداً ولا يوجد كادر مدرب للتعامل مع هذه المخاطر

....

ب- لا يوجد صلاحيات لاستخدام هذه الوسائل ....

....

ت- خطورة التعامل بهذه الوسائل و لأنها مكلفة أيضاً

....

ث- هذه الوسائل غير متوفرة...................................... .

ج- إدارة مخاطر أسعار الصرف غير منطقية

....

ح- إرتباط الدينار الأردني بالدولار الأمريكي يمنح الشركة وضعاً مستقراً

....

خ- أسباب أخرى و هي

....

....

....

انتهت الأسئلة.........شكــراً.

توضيح للأساليب المذكورة لإدارة مخاطر تذبذب أسعار الصرف للعملات الأجنبية

1) **العقود الآجلة Forward contracts** : وهي اتفاق على بيع أو شراء أصل (عملة) في وقت مستقبلي معين مقابل سعر معين.

2) **العقود المستقبلية Future contracts** : على غرار العقود الآجلة, فإن العقود المستقبلية اتفاق على بيع أو شراء أصل (عملة) في وقت مستقبلي معين مقابل سعر معين, و لكن الفرق يكمن في أن العقود المستقبلية يتم تداولها فـــي البورصات, ومن أجل ذلك تحدد البورصة سمات معيارية للعقد من حيث حجمه و تاريخه.

3) **عقود الخيارات Option contracts** : وهي عقود تعطي حائزها الحق في البيع/ الشراء الآجل للعملة ولكن لا يتعين عليه أن يمارس هذا الحق و ذلك هو الفرق الأساسي بين هذه العقود و العقود السابقة, والفرق الأخر هو انه هناك سعر أو كلفة للدخول في عقد الخيارات على خلاف العقود السابقة.

4) **عقود المبادلة Swap contracts** : وهي عقود تبرم بين طرفين يتفقان فيه على تبادل تدفقات نقدية بعمل مختلفة خلال فترة مستقبلية.

5) **القروض قصيرة الأجل** : وهي عملية تجرى عند وجود مبالغ ستقبض في المستقبل بعملة أجنبية ,حيث يتم اقتراض مبلغ معين بنفس العملة (ويتم تحويلها إلى العملة المحلية) و يكون هذا المبلغ بالإضافة إلى الفائدة المترتبة عليه مساوي للمبلغ المفروض قبضه وبالتالي يتم تسديد القرض عند تحصيل المقبوضات.

6) **الإيداعات قصيرة الأجل** : وهي عملية تجرى عند وجود مبالغ مستحقة على الشركة في المستقبل بعملة أجنبية ,حيث يتم إيداع مبلغ معين بنفس العملة و يحسب هذا المبلغ بحيث يكون مساوياً للمبلغ المستحق ناقص الفائدة المكتسبة من إيداعه و بالتالي يتم تسديد المستحقات من المبلغ الذي تم إيداعه.

7) **السياسة التسعيرية** : ويقصد بها إمكانية تعديل الأسعار (للبيع و الشراء) بحيث يتم تعويض الفروقات أو الخسائر الناتجة من تذبذب أسعار الصرف للعملات الأجنبية.

8) **Netting**: و هي تقنية مبنية على افتراض أن الشركة تتعرض لمخاطر تغير أسعار الصرف لتعاملاتها بأكثر من عملة, و يتم تجميع و تصفية هذه المخاطر بحيث يكون التحرك السلبي لعملة ما يقابله تحرك إيجابي لعملة أخرى يلغي تأثير العملة الأولى و يحدث ذلك عند وجود علاقة ترابط عكسية بين العملتين.

9) **Leading & Lagging**: و هي عملية التسريع أو المماطلة في دفع الالتزامات أو قبض الحقوق بما يتوافق مع مصلحة الشركة وتوقعاتها بخصوص تغير سعر عملة ما, فمثلاً عند توقع انخفاض سعر عملة ما تحاول الشركة قبض حقوقها بهذه العملة بالسرعة الممكنة و تأجيل دفع التزاماتها قدر الإمكان, و العكس عند توقع ارتفاع سعر العملة.

10) **Matching**: و هي عملية تغطية المستحقات المالية على الشركة باستخدام التدفقات المالية المقبوضه بنفس العملة.

Part 1

General information of the firm:

1. **Name of the firm ....**

2. **The industrial group for the firm is**

☐ Manufacturing ☐ Wholesale & Retail trade

☐ Mining & Processing ☐ Agricultural

☐ Building & construction ☐ Other................ .

3. **Ownership of the firm:**

☐ Public (Governmental) ☐ Private

☐ Mixed.

4. **Legal structure of the firm:**

☐ Public Shareholding ☐ Private Shareholding

☐ Partnership ☐ Limited Liability.

☐ Private Company

5. **Capital of the firm ....**

6. **The market value of the firm assets ....**

7. **Annual sales of the firm ....**

8. Percentage of Foreign Sale's (Revenue's) to Total Sales (Revenue's).

☐ 0, No foreign sales ☐ 10% ☐ 20% ☐ 30%

☐ 40% ☐ 50% ☐ 60% ☐ 70% ☐ 80%

☐ 90% ☐ 100%.

9. Percentage of Foreign Cost's to Total Cost's

☐ 0, No foreign costs ☐ 10% ☐ 20% ☐ 30%

☐ 40% ☐ 50% ☐ 60% ☐ 70% ☐ 80%

☐ 90% ☐ 100%.

10. Percentage of Foreign Debt to Total Debt

☐ 0, No foreign debt ☐ 10% ☐ 20% ☐ 30%

☐ 40% ☐ 50% ☐ 60% ☐ 70% ☐ 80%

☐ 90% ☐ 100%.

11. What are the foreign currency's that are usually dealt with and its percentage to the total foreign currency's used.

Currency	%	Currency	%

Part 2

Transaction Risk

1. **Does the firm deal with Accounts/Payables or Accounts/Receivables that are exposed to foreign currency risk?**

☐ Yes ☐ No.

*If answered No please proceed to Part3.

2. **Do you manage that risk?**

☐ Yes ☐ No.

*If answered No please proceed to Q5.

3. **What is the purpose of the firms' Foreign Exchange Risk Management?**

☐ To hedge the risk ☐ Speculation

☐ Both

4. **Please indicate the level of using the following hedging instruments by your firm to manage Foreign Exchange risk.**

#	Technique	Always	Usually	Sometimes	Seldom	Never
1	Forward Contracts					
2	Future Contracts					
3	Option Contracts					
4	Swap Contracts					
5	Short-term borrowing					
6	Short-term deposits					
7	Pricing policy					
8	Using domestic currency					
9	Netting					
10	Leading & Lagging					
11	Matching					
12	Other Methods:					

* If answered never to one or more choices please answer the next question by assigning the number(s) of the technique that is (are) not used by the firm by the reasons provided next.

5. **The reason(s) behind not using one or more of the managing techniques.**

   a) Too complex and there is no trained staff to deal with Foreign Exchange Risk Management
   ……………………………….
   b) Not allowed
   ……………………………………………..….
   c) Instruments are not available
   ……………………………..
   d) Too risky and expensive to use some hedging instruments……………………………..
   e) Not logical to manage Foreign Exchange Risk
   ………………………………………………….
   f) Other reasons:
   ……………………………………………………….

Part 3

Economic Risk

1. **Please indicate the sensitivity level of the following variables to the fluctuations foreign currency's rates in the long run.**

	Low Sensitivity				High Sensitivity
Sales volume	☐	☐	☐	☐	☐
Costs	☐	☐	☐	☐	☐
Profit	☐	☐	☐	☐	☐

2. How often does your firm use the following techniques to manage foreign currency risk?

#	Technique	Always	Usually	Sometimes	Seldom	Never
1	Sourcing inputs in the same currencies as sales are made.					
2	Altering the country from which inputs are sourced, or exports are delivered following movement in foreign exchange rates.					
3	Altering the country in which following production/ occur, following movements in foreign exchange rates.					
4	Foreign currency denominated debt.					
5	Diversifying sales in many different currencies.					
6	Long-term derivatives					
7	Other Methods:					

* If answered never to one or more choices please answer the next question by assigning the number(s) of the technique that is (are) not used by the firm by the reasons provided next.

3. The reason(s) behind using one or more of the managing techniques.

a) Instruments are not available

....

b) Too complex and there is no trained staff to deal with Foreign Exchange Risk Management

....

c) Not allowed ....

d) Too risky and expensive to use some hedging instruments..................................

e) Not logical to manage Foreign Exchange Risk

....

f) The pegged JD to the US dollar gave the firm a stable position...................................

g) Other reasons:

....

The end

Thank you for your cooperation

Appendix (2): Abstract in Arabic

الملخص باللغة العربية

"ممارسات إدارة مخاطر أسعار الصرف الأجنبية من قبل الشركات الأردنيه غير المالية"

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إشراف:

الأستاذ الدكتور. رياض المومني

تعتبر مخاطر أسعار الأجنبي من أهم المشاكل التي تواجه المدراء الماليين وخصوصا في ظل العولمة و انفتاح الأسواق العالمية. تهدف هذه الدراسة إلى وصف ممارسات إدارة مخاطر أسعار الصرف الأجنبي من قبل الشركات الأردنية غير المالية, كما أن الدراسة تهدف إلى اختبار مدى تأثير عوامل مختلفة تم افتراض أنها تؤثر على مدى تبني تقنيات إدارة مخاطر أسعار الصرف الأجنبي. و هي: حجم الشركة, القطاع التي تعمل ضمنه, هيكلها القانوني وأخيراً مدى تعاملها مع التجارة الدولية.

و تركز هذه الدراسة على إدارة مخاطر أسعار الصرف من خلال بعدين و هما: مخاطر التعامل (transaction exposure), والمخاطر الاقتصادية (economic exposure).

تمت الدراسة بتحليل 73 شركة أردنية غير مالية مدرجه ضمن كبار المكلفين في دائرة ضريبة الدخل و المبيعات الأردنية, وقد أشارت نتائج الدراسة أن ممارسة تقنيات إدارة مخاطر الصرف هو أمر غير شائع من قبل الشركات الأردنية.و خصوصاً استخدام المشتقات المالية, و تعتمد معظم الشركات على الأساليب الداخلية لإدارة هذه المخاطر.

تخلص الدراسة بعدم وجود علاقة دالة إحصائيا بين ممارسة تقنيات إدارة مخاطر الصرف لمواجهة مخاطر التعامل من جهة و حجم الشركة و هيكلها القانوني من جهة أخرى. بينما وجدت علاقة دالة إحصائيا بين قطاع الشركة و مدى تعاملها مع التجارة الدولية مع ممارسة تقنيات إدارة مخاطر الصرف لمواجهة مخاطر التعامل. أما بالنسبة إلى البعد الاقتصادي فوجدت الدراسة علاقة بين جميع العوامل السابقة مع ممارسة تقنيات إدارة مخاطر الصرف لهذا البعد.

ومن أهم توصيات هذه الدراسة القيام بعقد البرامج التدريبية للمدراء الماليين للشركات الأردنية و ذلك لدعم معرفتهم حول أهمية مخاطر أسعار الصرف الأجنبي و التقنيات المختلفة لإدارة هذا النوع من المخاطر.

الكلمات المفتاحية : مخاطر أسعار الصرف الأجنبي, مخاطر التعامل, المخاطر الاقتصادية, المشتقات المالية.